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Becoming a climate-friendly hospital: Implications for nursing practice within the Australian healthcare context

Teresa Miriam Ann Lewis

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Becoming a climate-friendly hospital: Implications for nursing practice within the Australian healthcare context

Teresa Miriam Ann Lewis

Supervisors:

Professor L. Moxham, Dr. M. Broadbent & Professor R. Fleming

This thesis is presented as part of the requirements for the conferral of the degree:

Doctor of Philosophy

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The University of Wollongong
School of Nursing

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ABSTRACT

Health organisations worldwide are transitioning from a traditional focus on predominantly clinical care to one that incorporates a more holistic approach to the health of humans and their environment, this change is largely in recognition of the huge amount of waste sent to landfill, energy intensive requirements and voracious water use by hospitals. Such environmental concerns have seen traditional hospitals identified as some of the largest contributors to global climate change. This type of behaviour has been identified as being unsustainable for both human and environmental health. Seven key elements have been introduced as a foundational framework for hospitals worldwide to address their negative environmental impacts by incorporating mitigation measures to reduce their carbon footprints. When one or more of these key elements are implemented healthcare organisations may be given labels such as green, climate-friendly or environmentally sustainable. Implementing environmental stewardship practices within hospitals can be a challenge. Within both health care and healthcare organisations it is the health professionals that are the driving force for mitigation measures.

Nursing is the largest health care professional group within hospitals and it is nursing practice that is changing to incorporate mitigation measures within the social environment of climate-friendly organisations. As such, nurses are undertaking roles that require them to be an environmental steward.

This hermeneutic phenomenological study explored the experiences of ten Australian nurses to discover an essence of meaning that could reveal an answer to the question of 'what does it mean for a RN to work in a climate-

friendly hospital?' van Manen's (1990) three analytical steps were used to reveal and isolate participant's statements. These statements informed three main themes, 1) *awareness of self within the social environment of a climate-friendly hospital*, 2) *practice and the challenge of existence within two lifeworld qualities - nurse/environmental steward* and 3) *the need to belong-encompassing a collective ownership of a climate-friendly hospital*.

Analysis of the statements showed that embedded into the experiences of each of the nurse participants was the need to '*establish an identity*' within the space of a climate-friendly hospital. Having such an identity would facilitate the understanding of the significance of incorporating mitigation measures into daily nursing practice.

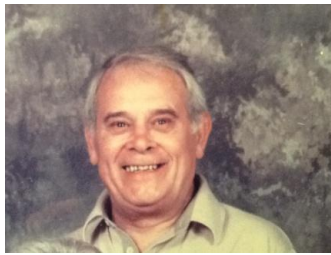
The study found that in order for a climate-friendly hospital to flourish nurses need to understand environmental sustainability. It is imperative that hospital managers not only educate nurses on mitigation strategies but include nurses as agents of change in policymaking decisions on how mitigation measures can be best executed. This will ensure that climate-friendly initiatives are suited to both nursing practice and environmental stewardship.

DEDICATION

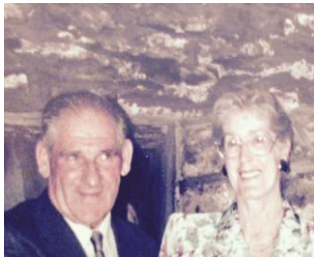
One delicate planet - Many delicate lives



It is with both pride and a heavy heart that I dedicate this thesis to my family who encouraged me to go on this journey, but sadly will not be here to share with me the joy in its completion. They will never know how great the individual gifts of their varying qualities have helped to make me the person I am today. For these great gifts I thank them, in return - my work - completed.



My father Lewis Charles Carlson



My mother-in-law and father-in-law Sheila and Llewellyn Lewis



My sister-in-law Susan Daniel

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Conference presentations

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Peer reviewed poster presentations

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GLOSSARY OF TERMS

Acronym	Term	Definition
ACHS	Australian Council on Healthcare Standards.	The ACHS is authorised to accredit healthcare facilities that correspond with the Australian Commission on Safety and Quality Health Services Standards (NSQHSS).
CFH	Climate-Friendly Hospital.	A climate-friendly hospital is a complex sustainable development in health care that aims to create a healing setting for both internal and external environments through mitigation strategies such as the seven key elements identified in the World Health Organization and Health Care Without Harm's 2009 framework.
EN	Enrolled Nurse.	Registration as an enrolled nurse (EN) means you need to meet the NMBA's mandatory registration standards. ENs are expected to practise within the relevant NMBA-approved standards for practice and decision-making frameworks.
EQulP	Evaluation and Quality Improvement Program.	The EQulP Program in Australia monitors both clinical and non-clinical processes.
HCWH	Health Care Without Harm.	Health Care Without Harm is a global non-profit organisation that strives to ensure that global health care sectors are doing their best to transform their facilities into ones that will not harm humans or the environment.
NPI	National Pollutant Inventory.	The NPI comes under the Australian Government Department of the Environment. The NPI is an information guide for managers on how to estimate their organisations emissions, in order to carry out their annual due diligence.
NMBA	Nursing and Midwifery Board.	The NMBA has many functions such as: the registration of nurses; the development of standards, codes and guidelines for the nursing and midwifery profession; the handling of complaints, investigations and disciplinary actions; assessment of overseas nurses wishing to practice within Australia; approving accredited standards and courses of study.
RM	Registered Midwife.	A midwife is a person who has successfully completed a midwifery education program that is duly recognised in the country where it is located and that is based on the International

Acronym	Term	Definition
		Confederation of Midwives (ICM) essential competencies for basic midwifery practice and the framework of the ICM global standards for midwifery education; who has acquired the requisite qualifications to be registered and or legally licensed to practice midwifery and use the title 'midwife'; and who demonstrates competence in the practice of midwifery.
RN	Registered Nurse.	Registration as a registered nurse (RN) requires you to meet the NMBA's mandatory registration standards. RNs are required to practise within the relevant NMBA approved standards, codes, guidelines and frameworks.
WHO	World Health Organization.	The World Health Organization is a non-profit organisation that works with many other organisations worldwide in the interest of both human and environmental health.

CHAPTER ONE

RESEARCH SYNOPSIS

Introduction

Hospitals throughout Australia are implementing environmentally sustainable practices to address the negative impacts caused by their operational activities. High energy consumption, massive water use and enormous waste production are examples of many activities that healthcare organisations have identified as contributing to Global Climate Change (GCC), (World Health Organization (WHO) & Health Care Without Harm (HCWH), 2009).

Activities such as those identified in the previous paragraph that negatively impact the environment are now beginning to be addressed. A framework consisting of seven key elements has been identified that can assist healthcare organisations, not only within Australia, but also worldwide with their mitigation strategies. These elements include: energy efficiency, green building design, alternative energy generation, transportation, food, waste and water (WHO & HCWH, 2009). By implementing strategies to address these elements, Russell, Anstey, and Wells (2015) suggest that healthcare organisations can become socially, economically and environmentally sustainable, both for now and in the future, with respect to their business practices.

Literature surrounding environmentally sustainable practices within healthcare organisations has been on the increase within the past decade. For example: Shaner-McRae, McRae, and Jas (2007) wrote about the impacts on the environment through poor waste management strategies during nursing practice; Agar (2010) described the capture and reuse of reject water from

hospital- based dialysis procedures; Riedel (2011) discussed the financial impact of a hospital recycling program; Bajgoric, Appiah, Wass, and Shelton (2014) highlighted the possibility of making clinical skills more sustainable within health services; Dhillon and Kaur (2015) stated how employing sustainable measures could reduce the environmental footprint of a healthcare institution; and more recently Jablow (2016) claimed that green teaching hospitals are producing a positive effect on both population health and the social determinants of health.

Emerging at a slower pace is literature that addresses the combination of environmental sustainability and the nurse's role (McMillan, 2014). It would appear that this is considered somewhat of a new area with Anåker and Elf (2014) contending that what is known within the realms of nursing in respect to sustainability, actually emanates from disciplines that are external to the nursing profession, and the knowledge that has been gained appears to revolve around and focused on the word environment. Anåker and Elf's (2014) view is related to information in respect to sustainability and nursing, but McMillan (2014) contends that the notion of environmental considerations within nursing practice can be traced back to a more identifiable figure in nursing such as Nightingale in the 1850s. The author does, however, state that the word sustainability still remains an ambiguous topic of discourse in contemporary nursing (McMillan, 2014).

Motivation for this study

The incentive for this research stemmed from my role as a Registered Nurse (RN)/Registered Midwife (RM) working in adult, neonatal and children's

intensive care units. Over the past decade, I began noticing an increase in adults and children being admitted with respiratory illnesses. I reflected upon a journal article that I had read on 'Global climate change and children's health: Threats and strategies for prevention' by Sheffield and Landrigan (2011). The authors, as a result of their primary research studies and review of articles and organisational reports, confirmed that respiratory illnesses along with other ailments such as vector-borne diseases were on the increase as a result of global climate change. The authors also reported that greater than 150,000 deaths worldwide in the year 2000 were attributable to Global Climate Change and that 88 percent of those affected were children (Sheffield & Landrigan, 2011). These statistics really sparked my interest into how climate affected health in broad terms. I then became more focused and considered environment change within hospitals.

The flame that had been ignited turned my attention to the work of Florence Nightingale and how she incorporated her understanding of how the environment affected patient care. Nightingale understood that environmental considerations such as clean air and water impacted health outcomes in a positive way, and set about to ensure that environmental considerations became an integral component of nursing practice. This interest spurred me on to wanting to learn more and so I undertook a Master's degree in Environmental Change Management. It was during this degree that I became aware of the seven key elements framework mentioned previously and how these elements, when implemented singularly or in combination, came to represent a 'climate-friendly' hospital. Drilling down even further, I then wanted to explore this notion

of climate-friendly hospitals but particularly wanted to understand what it might be like to work in one from the perspective of a RN.

I wondered if what I was interested in had been studied before. An initial review of the literature identified there to be scant research into climate-friendly hospitals and, furthermore, it was identified that no-one within Australia had conducted an in-depth study on what it was like for nurses to work in such an organisation. With this research gap identified I decided to investigate what it was like to be a nurse in a climate-friendly hospital. In this quest I wanted to understand what the nurses themselves understood about working in climate-friendly hospitals and what meaning they were able to assign to the application of environmentally sustainable initiatives to their nursing practice. I wanted to talk to the nurses who were working in these organisations - they would be my participants.

Given the immense interest I have in this area and that I already possess a body of knowledge, a qualitative approach enables me, as researcher, to bring these personal and professional experiences to the study (Creswell, 2003).

This was important as I felt it would have been impossible to bracket away any pre-conceived ideas or notions that I have. In addition, a qualitative approach would allow me to understand potential participants' points of view from a common understanding of nursing practice given that I am both a RN and a midwife. I would come to learn that this shared understanding between both the participants and myself is known as a 'fusion of horizons' (Vessey, 2009).

Given that I wanted to understand what it was like for nurses to work in a climate-friendly hospital, and that I would be using a qualitative paradigm, the

hunt for a suitable methodology began. I read widely and created lists of pro's and con's which incorporated an analysis of the approaches and their suitability to answer my particular area of interest. Phenomenology as a methodology stood out. Within phenomenology, Heidegger's particular approach and philosophy resonated well with me, principally as it is steadfast in the belief of the existence of what is already known and the relationship with others as we go about our day-to-day activities (Cammell, 2015). A hermeneutic approach was also appropriate for this particular study as hermeneutics is about understanding 'self' and what our lives mean (Schuster, 2013). The rationale for the choice of methodology is fully explicated in Chapter Three - Research Design.

Rationale for the study

Recognising the negative impacts that hospitals have on the environment, as briefly outlined above, has meant that the emergence of climate-friendly hospitals are on the increase globally. Climate friendly initiatives in the form of mitigation strategies within these hospitals have meant that environmentally sustainable implementations have become part of a daily nursing practice. No-one has studied this from the perspective of RNs who work in these institutions.

Research Aim

The aim of this two-phase research project was to use the seven key elements as criteria to identify which Australian healthcare services are adopting strategies to mitigate negative environmental practices, and then to understand the implications of these strategies on the RNs working within them.

The first phase, which includes the scoping of Australian hospitals to identify those who can be labelled as climate-friendly, was necessary in order to undertake the second phase which was to recruit participants who would understand 'what it means for a RN to work in a climate-friendly hospital.'

Research questions

Two research questions guided the study. These are:-

a) "To what extent have hospitals become climate-friendly within Australia?"

- a comprehensive audit of Australian hospitals enabled identification of those who are climate-friendly according to the seven key elements.

and

b) "What does it mean for a RN to work in a climate-friendly hospital?"

- a phenomenological approach guided in-depth semi structured interviews of RNs who work in a climate-friendly hospital.

Organisation of the thesis

The thesis is presented in six chapters. Chapter One provided a general introduction to the phenomenon of interest. It offered a summary of how the researcher became interested in conducting such an original piece of work. The significance of the study was outlined along with the aim of the research and the research questions. The chapter concludes with a brief description of what is presented in each chapter.

Chapter Two - provides the background to the study by exploring the literature related to this topic and is presented in two sections. The first section of Chapter Two commences with a historical account of the establishment of Australian hospitals. This provides the foundation for a discussion on the transformation of some of these institutions into hospitals that are now labelled as climate-friendly. The progression of climate-friendly agendas is also presented and includes both global and more localised Australian perspectives. The second section of Chapter Two provides a brief history of nursing along with how contemporary nursing has become involved in environmentally sustainable agendas.

Chapter Three explains the research design. It is presented in two sections. Section One describes the qualitative methodology and in particular discusses Heidegger's hermeneutic phenomenology. It also outlines the role of the researcher as well as the researcher's axiological position. Importantly, section one depicts the historical account of phenomenology, its place within nursing research, and the significance of choosing a hermeneutic phenomenological methodology for this particular study.

Section Two describes the method used to guide the analytical process, ethical considerations, and the inclusion criteria for both hospitals and participants. This section also discusses the findings of phase one of the study which was "To what extent have hospitals become climate-friendly within Australia?" This was answered by undertaking a comprehensive audit of Australian hospitals which enabled identification of those who are climate-friendly according to the

seven key elements. The chapter outlines the 27 hospitals that were identified and the seven of those from which participants were recruited.

This phase informs phase two "What it means for a RN to work in a climate-friendly hospital." Chapter Four contains the phase two findings that present the voices of the ten participants who volunteered their time to discuss their experiences.

Chapter Five is the discussion chapter and has been constructed from the experiences of the participants. It is within this chapter that the core essence of meaning is divulged. The chapter is supported by existing literature and gives voice to the experiences of the ten participants.

Chapter Six is a summary of the aims and purposes of the research which illustrates the contribution to knowledge. It brings closure to the thesis by presenting some recommendations for practice for all healthcare professionals working in a climate-friendly hospital. Other considerations for transitioning healthcare organisations include recommendations for policymakers and for infrastructure. Limitations of the study are identified along with recommendations for further research. A personal reflection concludes the thesis.

Conventions used in this thesis

Throughout the thesis the words 'I' and 'the researcher' are used interchangeably when speaking of myself. This variation is dependent upon how I identify as an entity of being-in-the-world at that specific time. In other words there will be times when the word 'I' refers to the relation I have with the qualities that will identify me within my home/work lifeworlds. On other

occasions I may see myself with qualities that will identify myself as being-in-the-world as a novice researcher, and that of a beginning writer of hermeneutics.

Participants of this study are presented with pseudonyms; this is to protect their identities and is in keeping with a hermeneutic phenomenological approach.

From time to time the reader may notice that the word client replaces the word patient. This is dependent upon where the participant works and how they describe the person in their care.

Themes and sub-themes are bolded and commence with a capital letter for example:

Awareness of self within the social environment of a climate-friendly hospital.

APA referencing states that if there is no page number then paragraph numbers may be utilised instead for example:

Thomas, 2016, para. 4

Direct quotes and quotes from participants are in an italic format.

Single quotation marks are used on occasions for 'added emphasis.'

Environmentally sustainable terms used throughout the thesis

What has been brought to light during this study is that there are various terms used in the literature that mean the same thing. For example, the manner in which nurses are described, the ways in which healthcare services describe their organisations and the way in which participants explain environmentally

sustainable implementations within their work lifeworld. Such terms are further explained.

As stated above, language within environmental sustainability can be presented in various ways, especially so when alluding to nurses as stewards of the environment. Within this study and to honour such variations in nomenclature the reader will notice that nurses working in climate-friendly hospitals will sometimes be referred to as: environmental stewards, stewards of the environment, or environmental health advocates. Where possible the researcher tries to maintain the use of the first two terms.

Certain organisations talk about their hospitals as being climate-friendly, others use the words green hospital, sustainable hospital, healthy or even environmentally friendly hospital and/or organisations. As this study examines what it is like for a RN to work within a climate-friendly hospital, this term (climate-friendly hospital), is used whenever possible.

Receptacles that house discarded paper are also described in various terms by participants. Participants often stated that within their ward, department or unit they will have the following: a big recycling cardboard box, a box, a bin, shredder recycling box, shredding rubbish bin, paper bin and recycling bins. Many of these descriptive words are presented within this thesis but the context in which they are offered should afford clarification.

The conventions used in this thesis as described above have brought this introductory chapter to a conclusion. Chapter Two discusses the background and context of the study.

CHAPTER TWO

BACKGROUND AND CONTEXT

Introduction

This chapter provides the background and context to this study by elucidating what is currently known in relation to the transformation of traditional hospitals into those known as climate-friendly hospitals within Australia. Climate-friendly hospitals are implementing elements that are identified with the World Health Organization's (WHO) and Health Care Without Harm's (HCWH) framework titled 'Healthy Hospitals, Healthy Planet, Healthy People' (WHO & HCWH, 2009). The elements, which will be described in greater detail later in the chapter, are the criteria used to define a climate-friendly hospital. Prior to becoming climate-friendly it has been suggested that hospitals did not take their responsibilities in relation to issues surrounding the environment as seriously as they could have (Ulhoi & Ulhoi, 2009). However, many hospitals are changing their practices to address such concerns.

This chapter is divided into two sections. The first section provides a historical account regarding the establishment of hospitals in Australia, discusses the drivers of health care with environmental inclusion, and describes the development of climate-friendly hospitals. This section also describes elements of what some hospitals are implementing in their quest for climate-friendly status.

The second section of the chapter discusses nurses as change agents and how contemporary aspects of nursing roles can support and inform implementations within climate-friendly hospitals. The reconnaissance regarding the

transformation of the nursing profession is pertinent to this research given that it aims to develop an understanding of 'what it means for a RN to work in a climate-friendly hospital.'

Data sources

The following databases have been used to gather and then analyse literature for this thesis. Peer reviewed literature was sourced from: Academic Search Complete, CINAHL Plus with Full Text, GreenFILE, Health Business Elite, Health Source Nursing/Academic Edition, SocINDEX with Full Text, MEDLINE with Full Text, Humanities International Complete and Proquest. Other sources included the Summon general data base, government and non-government resources, books and Google Scholar. It was also necessary to conduct comprehensive internet searches to gather information from hospitals and other healthcare organisations as well as reports, position statements and web sites. Identifying grey literature and the subsequent analysis was necessary to inform this research as sometimes information isn't always in the academic and research literature. During the extensive search it became increasingly apparent that the term climate-friendly hospital was an expression that did not produce as much data as expected. This in itself is an important finding for the following reason. The words climate and friendly were found to be used to express other topics of interest within nursing and hospitals and more broadly regarding matters to do with the environment and climate change. Examples of such broad topics of interest are offered below with the topic associated with climate or friendly underlined:

Bennet, Ockerby, Stinson, Willcocks, and Chalmers (2014). 'Measuring hospital falls prevention safety climate.'

Hwang and Parke (2014) 'Nurses' perception of ethical climate, medical error experience and intent-to-leave,'

Kelley, Parke, Jokinen, Stones, and Renaud (2011) 'Senior-friendly emergency department care: an environmental assessment.'

Given the diversity of returned articles, more focused terms such as sustainable hospitals, environmental stewardship and green practices were deemed necessary and proved more useful. In addition, specific words such as: hospitals and recycling, hospitals and energy conservation, hospitals and water conservation, and hospital transport, for example, were used. The use of such specific words not only aided in locating essential literature to support the achievement of the aim of this research, but the words were also synonymous with those used to identify a climate-friendly hospital (WHO & HCWH, 2009).

Key terms were also required which led to wild card searches such as: nurs*(nurses, registered nurses, nursing practice, and nursing), climat* friendl* hospit* (hospitals, green, environmen* and sustain*). A wild card exploration uses the (*) character to expand searches such as those used above to seek out information pertaining to climate-friendly hospitals (Adobe, 2014). Further Boolean Operators such as, and, or, and not, were used to combine key words. This resulted in more focused and productive results and improved opportunities to find relevant information.

Gathering and analysing literature was ongoing in order to remain up to date with new advances and knowledge within the area of climate-friendly hospitals and nursing practices therein. Contemporary data collection was enhanced by

placing auto alerts on sites such as: the University of Wollongong Library, Sigma Theta Tau International Honor Society of Nursing, Australian Healthcare and Hospitals Association, Climate Change and Health Alliance, and Health Care Without Harm. Over the course of the research, evolution and implementation within the area of climate-friendly hospitals has been ongoing. This progress is mentioned briefly in the next paragraph.

The emergence of climate-friendly hospitals

Since the inception of a climate-friendly hospital framework in 2009 by the WHO and HCWH, the concept of the seven key elements has continued to grow. Literature shows that the original seven key elements have since been built upon and an example of this is the ten step agenda called 'Global Green and Healthy Hospitals,' a project of Health Care Without Harm (Karliner & Guenther, 2011). This ten step agenda has been further expanded by the Asklepios Group to include twenty-nine elements (Green Hospital Program, n.d.). The notion of climate-friendly hospitals is a dynamic one and can be expected to continue to transform over the coming years. Both the ten step agenda and the Asklepios Group will be discussed in more detail later in the chapter.

Although the original framework containing the seven key elements has since been expanded, the foundational characteristics remains pertinent to what a climate-friendly hospital means. Despite this framework being developed by the WHO and HCWH in 2009, the progress toward hospitals becoming climate-friendly within the Australian healthcare context remains embryonic. This could be due to a lack of mandate and monitoring.

There are, however, moves afoot within Australia to raise awareness regarding hospitals and the negative contributions they make towards the environment. McGain, Blashki, Moon, and Armstrong (2009) deliver a strong message with regard to Australia's progress on environmental sustainability in healthcare organisations. The authors see progress within this area as being both uncertain and unmonitored (McGain et al., 2009). However, since being alerted to Australia's slow progress in environmental sustainability by such authors as McGain et al. (2009), the Australian Council on Healthcare Standards (ACHS) in January 2013 developed the EQUIPNational program. EQUIPNational compliments the National Safety and Quality Health Service (NSQHS) Standards (Australian Council on Healthcare Standards (ACHS), 2013). EQUIPNational:

- Is a comprehensive organisation-wide assessment monitoring and reporting procedure of clinical and non-clinical processes;
- Is easy to implement;
- Is an evidence-based program; and
- Has been developed with input from member organisations.

(ACHS, 2013)

EQUIPNational has also produced an additional five Standards derived from key elements of the past EQUIP5 Program, these additional Standards also complement the already existing ten NSQHS Standards (ACHS, 2013). The Standard that pertains to this study can be found under Standard 15 'Corporate Systems and Safety' under the heading 'Waste and Environmental Management' :

Item: 15.24 - Implementing a system for the management of waste.

Action: 15.24.1-The waste and environmental management system is evaluated to ensure that it includes:

- Development and implementation of policy;
- Coordination with external authorities; and
- Staff instruction and provision of information on their responsibilities.

Item: 15.25 - Implementing systems based on recycling, reducing and reusing and identifying waste management streams through the provision of appropriate signage to ensure accurate separation and segregation of waste within the organisation.

Action: 15.25.1- Controls are implemented to manage:

- Identification;
- Handling; and
- Separation and segregation of clinical, radioactive, hazardous and non-clinical waste, and the controls are evaluated, and improved as required.

Item: 15.26- Implementing systems to manage resource sustainability.

Action: 15.26.1- System resource sustainability will:

- Increase the efficiency of energy and water use;
- Improve environmental sustainability; and
- Reduce carbon emissions is evaluated, and improved as required.

Information on the above Standards was gathered from the EQulPNational Standards 2013 workbook; EQulPNational was reviewed again in July 2017.

(Australian Council on Healthcare Standards (ACHS), 2017)

The ACHS through its EQulP National program can either build on Australia's National Safety and Quality Health Services Standards (NSQHSS) or *"can be used as a comprehensive independent accreditation program for health services which are not required to participate in the NSQHSS"* (Australian Council on Healthcare Standards (ACHS), 2015, p. 1). For example the ACHS has an international subsidiary that is known as the Australian Council on Healthcare Standards International (ACHSI). The ACHSI was established in 2005 and bases its standards on the ACHS Standards. Elements from these Standards are able to be modified to suit other countries and cultures (ACHS, 2015). The ACHSI uses the EQulP framework from which ACHSI consultants are able to assist other countries such as nations in the Middle East, India and Hong Kong in developing their own accreditation programs (ACHS, 2015). Monitoring of such Standards, however, is paramount to the survival of environmental sustainability within hospitals. The importance of monitoring is stressed by McGain et al. (2009) who emphasised that without monitoring and adherence to frameworks, the pursuance of environmental sustainability within Australian healthcare organisations will remain a challenge. As this study has been undertaken with an Australian healthcare context in hospitals and with RNs who work within them, what follows now is a discussion regarding the transformation of Australia's first hospitals into the climate-friendly hospitals of today.

Section One

From tents to modern hospitals: A brief history

Hospitals came into being within Australia as the colonisation of the country grew and the necessity for facilities to be erected to house the sick increased. These facilities were in the form of tents known as *"the infant colony's hospital"* (Royal Australian Historical Society (RAHS), n.d., para. 5). The influx of convicts to the British penal colony of Australia, between 1787 and 1868, which amounted to 160,000 men and women (Foxhall, 2011), was a challenge for the rapidly growing colony with these numbers soon proving to be unmanageable in terms of health care given the infant colony's hospitals (tents) could only accommodate four people (Madsen, 2007). As the years passed and sickness prevailed within the colony more healthcare facilities were required. The first general hospital commenced in 1788 (The Rocks, 2012) - Figure 1, with Sydney Hospital opening its doors in 1816 (New South Wales Government (NSWG), n.d).



Figure 1. Site of the first general hospital in Australia
Photograph by researcher of thesis (Lewis, 2015).

Construction of hospitals continued and by the early 1800s facilities were erected at Windsor, Bathurst, Liverpool and Goulburn (all in New South Wales). These New South Wales hospitals served all members of the colony including convicts and some Aboriginal people (NSWG, n.d.). Like many countries, hospital construction continued to flourish in Australia with the total number of hospitals in 2010-2011 reaching more than 1300 (Australian Institute of Health and Welfare (AIHW), 2013). The number of such facilities is presented in Table 1 below and serves to illustrate the volume of healthcare facilities that are now contributing to health care provision, but are also producing negative environmental impacts.

Table 1
Total public and private hospitals in Australian states and territories for the year 2010-2011

	NSW	Vic	QLD	WA	SA	TAS	ACT	NT	Total
Public Hospitals.									
Public acute hospitals.	218	150	166	93	78	22	3	5	735
Public psychiatric hospitals.	8	1	4	1	2	1	17
Total public hospitals.	226	151	170	94	80	23	3	5	752
Private Hospitals.									
Private free-standing day hospital facilities.	91	85	53	34	28	2	9	1	303
Other private hospitals.	86	81	53	24	31	6	3	1	285
Total private hospitals.	177	166	106	58	59	8	12	2	588
ALL HOSPITALS.	403	317	276	152	139	31	15	7	1340

Adapted from Australian Institute of Health and Welfare (2013)

Hospitals - harmful or healing?

Throughout history hospitals have not only been a source of aid for individuals at times of need and ill health, but have also been identified by Ulrich, Quan, Zimring, Joseph, and Choudhary (2004, p. 2) as places of danger and stress for patients, families and staff members, with medical errors and hospital-acquired infections among the *"leading causes of death in the United States, each killing more Americans than AIDS, breast cancer, or automobile accidents."*

According to the Institute of Medicine (IOM) (2001) in its landmark 'Crossing the Quality Chasm' report, health care too frequently and routinely fails to deliver its potential benefits. The report also suggests that problems with health care facilities not only influence patient outcomes, but that they impact staff. Fealy, McNamara, and Geraghty (2010) also illustrate the harmful aspects of hospitals in the findings of their study conducted in the Republic of Ireland which explored health aspects of Dublin's hospitals from 1858 -1898. Fealy et al. (2010) identified that health concerns centred on sanitation, transmission of infectious diseases and effective waste disposal. These concerns were a result of ineffective infrastructure and the resistance to new ideas which could rescind a positive progression to a healthier outcome (Fealy et al., 2010). Today, as indicated above, some of the health concerns identified in this 21st Century Irish study which examined hospitals in the 19th Century remain pertinent. Concerns related to infection control (Aziz, 2008), the ability for personnel to embrace changes due to behavioural, cultural and social characteristics (Senzon, 2011), and issues related to waste disposal (da Silva Diaz et al., 2013) remain contemporary challenges for hospital administrators and managers. It is therefore somewhat ironic that hospitals are not only acknowledged for their

healing capacities, but they also house *"many substances now known to negatively affect human and environmental health..."* (Marshall-Baker, 2006, p. 531).

The harmful side of hospitals: A global perspective

In 1998 in the United States of America (USA) the Environmental Working Group, a non-profit and non-partisan organisation whose aim is to protect both the health of humans and the environment, conducted a survey on 50 major hospitals (Environmental Working Group (EWG), 2014). The working group concluded that healthcare organisations produced copious amounts of waste including the incineration of millions of tons of often carcinogenic toxins annually (Sattler, 2002). Sharma (2013) also examined hazards generated from healthcare facilities, emphasising the fact that there are many substances that can produce risks to both humans and the environment. One such risk is that of toxic substances of which hospitals are replete. Yun Jo et al. (2010) affirm that such toxic substances have negative effects.

Making the change from harmful to healing by becoming climate-friendly

Just as hospital environments have been recognised as producing risks to both humans and the environment (WHO & HCWH, 2009), they have also been recognised as being capable of addressing these less than desirable contributions. Attention is increasingly being given to 'greening' the environment by engaging in environmentally responsible behaviour (Topf, 2005). Such attention as it applies to hospitals includes collective interdisciplinary organisational behaviour that mitigates human and environmental risks, and drives a sustainable future (Topf, 2005).

Hospitals, albeit slowly, are becoming climate-friendly, but to support organisational transformation nurses need to remain flexible to accommodate changes (Rheume et al., 2015). Health services employ a large number of people and within this workforce nurses are in a prime position to influence organisational behaviour and drive change. Cooper (2015, p. 38) claims that *"Leadership is the ability to influence others to achieve goals set by individuals or organisations."* A focus on nurses as agents of change is particularly important given their numerical importance within the workforce (Buchan, Twigg, Dussault, Duffield, & Stone, 2015). According to 'Australia's Future Health Workforce-Nurses-Overview Report' there were over a quarter of a million (273,404) RNs and almost 60,000 Enrolled Nurses (ENs) registered in Australia in 2012 (Health Workforce Australia, 2014). This represents a significant number of potential agents of change which Hobbie (2004) suggests nurses to be. Not only are numbers large, specifically, within hospitals nurses often occupy senior leadership and managerial positions and have been noted to undertake roles with an interest in environmentally sustainable healthcare. Such roles include responsibilities pertaining to identification and procurement of reusable products for their organisations (Butterfield et al., 2014).

The challenge for healthcare organisations to become climate-friendly

Despite the fact that climate-friendly hospitals are addressing how they deliver health care, they continue to negatively contribute to human and environmental health. Topf (2005) considers hospitals to be contributing to an environmental crisis, and suggests that behaviour required to change to a more environmentally friendly practice is not occurring. This is as a result of: a) environmental paradoxes, b) value conflicts, c) myths and d) denial.

(a) Environmental paradoxes

As discussed above, hospitals contribute to both human healing and also to harming the environment. Such paradoxes are illustrated in Table 2 and presented in terms of macro and micro levels.

Table 2
Environmental paradoxes

Macro level	Micro level
Physical environment of hospitals heals.	Medical technology promotes personal health with diagnostic precision.
Physical environment of hospitals harms.	Medical technology threatens environmental health by using excessive energy.

Adapted from Topf (2005)

(b) Value conflicts

Healthcare is renowned for being values-driven especially with regard to patient care (Mallack, Lyth, Olson, Ulshafer, & Sardone, 2003). Mallack et al. (2003) though, contends that the values of patient care and the survival of organisations are in fact, in conflict. This tension is illustrated in Table 3.

Table 3
Values of concern between patient care and organisational survival

Patient care	Organisational survival
Concern for patient.	Business-like approach.
Team work for patient's interest.	Goal-oriented.
Influence of management on nurse's actions.	Competitive.
Physicians.	Marketing.
Hospital staff.	Legal/regulatory environment.

Adapted from Mallack et al. (2003)

Mallack et al. (2003) asserts that the culture of a work organisation drives the behaviour of its employees and with foresight in planning the designed

environment can act to shape certain behaviours. These behaviours can drive changes such as those necessary within a climate-friendly hospital given that the built environment is an integral consideration within such a context. To examine the relationship between the effects of the built environment on organisational culture, a research team conducted a study of a North American healthcare organisation that built a replacement hospital in order to measure outcomes regarding cultural relationships, and the performance of the built environment on the healthcare organisation. The researchers found that the physical environment shapes the behaviours and experiences of those who occupy that environment by creating opportunities for interaction within the environment in the context of patient care delivery. Results revealed that patients and staff had a positive association when the strength of culture and the built environment were both considered (Mallack et al., 2003).

Given that value conflicts are thought to influence organisational behaviour, a central value conflict that is experienced is that expectations regarding economic growth and financial concerns may be at odds with professional values associated with patient care. Hettenbach (1998) also contended that the value of profit can be at odds with the value to do no environmental harm.

(c) Myths

The dissemination of accurate and sufficient information is a significant component to change. *"To be information literate"* says the American Library Association (1989, p. 2) *"a person must be able to recognise when information is needed and have the ability to locate, evaluate, and effectively use the needed information."* This broad definition suggests that information literacy

can both enable individuals to identify the problem of lack of information and also provide an understanding as to how to address this. The research reported in this thesis found that the RN participants' perceived information about climate-friendly hospitals and initiatives within the organisations they were working, to be deficient. They identified a lack of information to be a problem but also offered some solutions. This is described in more detail in the findings and discussion chapters. To that end, increasing information literacy is important to provide necessary and accurate understanding of actions. With the move to more hospitals becoming climate-friendly, Topf (2005) states that it is unlikely hospitals will become 'green' if myths such as the following continue:

- Green buildings are passing fads;
- Green materials are not available;
- Their appearance is different; and
- They don't work and are costly.

(d) Denial

The fourth factor that contributes to the indifference that surrounds green hospital initiatives includes denial by staff to acknowledge that the hospital in which they work is one that could even contribute to environmental problems (Topf, 2005). Despite the reported complacency in acceptance of green hospitals, Guenther and Gilmore-Hall (2007) argue that such detachment is dissipating and that an increase in the greening of hospitals is being brought about as a result of:

1. The acceleration of interest in climate and global warming;

2. Sustainable buildings being viewed as key indicators of leadership by environmentally progressive communities;
3. Sustainable designs being recognised as 'doing the right thing'; and
4. Environmental roles becoming available due to financial gains from pollution prevention, in order to advance environmental initiatives.

Moving toward an environmentally sustainable approach

Addressing issues related to climate change by modifying healthcare facilities is attracting the formation of new alliances. An example of which is Doctors for the Environment Australia (DEA). This independent organisation is made up of medical doctors and medical students who believe not only in working toward an absence of disease, but who also believe in taking a serious stance in the development of sustainable healthcare that can extend to future generations (Roberts & Oddy, n.d.). Through engagement with the general populace, politicians and the organisation's peers, DEA raise alerts where necessary when health is thought to be affected as a result of climate (Roberts & Oddy, n.d.). When discussing sustainability in healthcare and greening hospitals, Guenther and Gilmore-Hall (2007, p. 2) insist that: "*'green design' and 'green building' are synonymous with 'sustainable design'.*" The authors assert that sustainable design such as a design that a climate-friendly hospital may exhibit is one that is all encompassing. In other words, the design considers both internal and external environments and all that surrounds them, inclusive of building materials used to construct the facility right through to transport and waste disposal.

One way of addressing the reduction of harm to humans and the environment is to encourage healthcare services to engage in activities that enhance sustainable development. This is quite a task seeing as there is no clear account of what a sustainable development is, or how its challenges are to be met from a global or regional perspective (Holden, Linnerud, & Banister, 2014). Olsen (1998, p. 289) however offers the following definition of a sustainable health service which a climate-friendly hospital contributes to: *"A health service is sustainable when operated by an organisational system with the long-term ability to mobilize and allocate sufficient and appropriate resources (manpower, technology, information and finance) for activities that meet individual health needs/demands."* It is imperative then, that if health services as organisational entities wish to become sustainable, an appropriate place to begin is by making necessary changes within hospitals.

Sustainable health

Whilst working toward a healthcare environment that is conducive to sustainability, Boone (2012, p. 5) highlights that *"sustainability balances the economic, environmental and social impacts of an organisation's operations."*

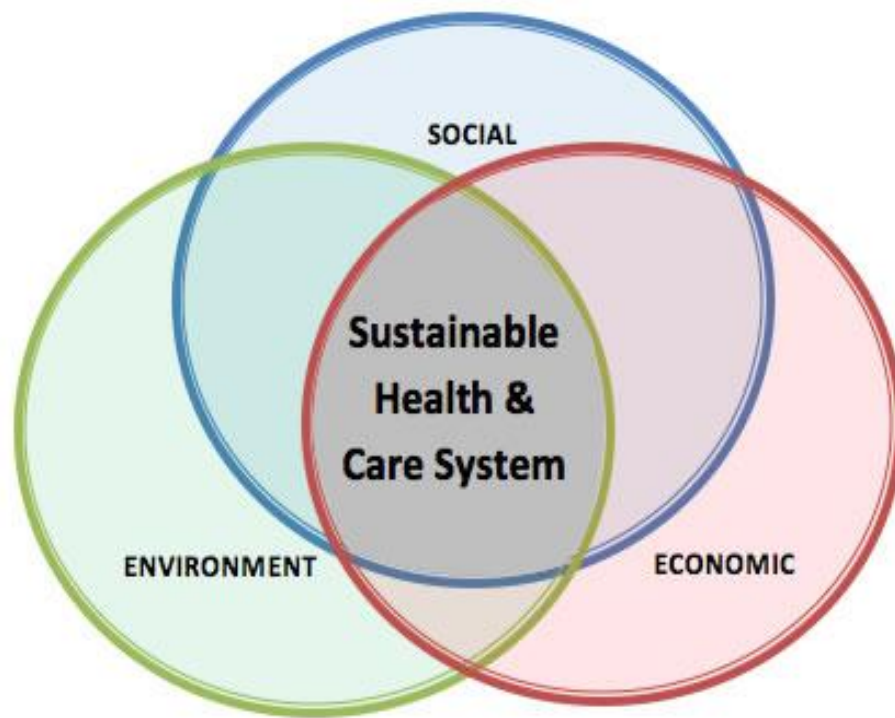


Figure 2. What is sustainable health?
(Sustainable Development Unit (SDU), 2014, p. 1)

Kitchin (2014), and the health service providers of the Sustainable Development Unit based in the United Kingdom (UK) acknowledge Boone's (2012) viewpoints in regards to the key components of sustainable healthcare systems - Figure 2. However, Kitchin (2014) contends that working within these boundaries will become a challenge if traditional health systems, including hospitals that are part of these systems, continue to operate as usual. The key components of a sustainable healthcare system are now discussed further.

Economic resources

Economic considerations drive strategies, and as such, often drive actions. One environmentally sustainable action that has been identified to save hospital costs is that of reprocessing (re-cycling). Kwakye, Pronovost, and Makary (2010) suggest that progressing to environmentally friendly practices such as

reprocessing requires some thought and action. An example is activities such as those which challenge the current processes related to waste elimination. Reprocessing can save healthcare organisations costs associated with waste disposal. Reusing single-use medical devices such as metal surgical scissors instead of these devices ending up in landfill is a case in point (DiConsiglio, 2008).

According to Kwakye et al. (2010) there are three different classes of medical devices that can be reprocessed, however, processes can include various levels of associated risk to patients. These are illustrated in Table 4. Column one illustrates the class of medical device, column two the type of medical device used, and column three indicates the level of risk that reprocessing single-use devices could potentially have on patients.

Table 4
Medical devices that can be reprocessed

Class	Type of medical device	Risk to patient
Class I.	Elastic bandages. Pressure infusion bags. Tourniquet cuffs. General surgical scissors.	Low risk.
Class II.	Pulse oximeter sensors. Ultrasound catheters. Drills. Compression sleeves. Most laparoscopic equipment.	Medium risk.
Class III.	Balloon angioplasty catheters. Percutaneous tissue ablation electrodes. Implanted infusion pumps.	High risk.

(Kwakye et al., 2010, pp. 398-399)

DiConsiglio (2008) states that medical devices such as those from categories one and two, such as pressure cuffs and pulse oximeter sensors were intended originally for single-use. However, as often occurs, reprocessed medical devices are repurchased by healthcare organisations with a saving of between 40-60 percent of their original cost. This effectively means that supposedly single use items can and are actually being re-used with the reprocessing industry being a \$150 million business (DiConsiglio, 2008).

Although reprocessing is beneficial to both humans and the environment, it remains rather a contentious topic within healthcare due to perceived risks and potential adverse outcomes to patients (Dunn, 2002). Despite the controversy surrounding the reprocessing of supposed single-use medical devices, purchasing reprocessed devices occurs largely as a result of the cost benefits of buying 'used' products for healthcare organisations (Jacobs, Polisena, Hailey, & Lafferty, 2008). As a result of the controversial aspects of reprocessed products related to patient risk, Standards Australia (2015) has published a joint Standard with New Zealand on the reprocessing of reusable medical devices. These Standards have been established to ensure that no human sustains harm when reprocessed devices have been used. Saving the healthcare dollar is important, but fiscal considerations and sustainable practices do not have to be in competition, with Gower (2013, p. 403) postulating that sustainable practices can still support economic growth whilst protecting both *"the natural resource base and the environment."*

Environmental resources

Unsustainable environmental practices have been associated with negative effects on humans and the environment. Such negative consequences contribute to decisions that some healthcare organisations have made regarding moving toward implementing climate-friendly sustainable initiatives (WHO & HCWH, 2009). Healthcare organisations should be stewards of both sustainability and the environment (Russell et al., 2015). For example, healthcare facilities are known to play a part in contributing to greenhouse gas emissions that are detrimental to human health and the environment (Russell et al., 2015). Sattler and Hall (2007) offer the following suggestions on how healthcare facilities can approach sustainability. They suggest that healthcare facilities can engage in environmentally astute procurement, waste management that is environmentally conscious, and the reduction of persistent untreated pollutants. The authors also state that nurses can be a catalyst in the implementations of such actions (Sattler & Hall, 2007), which once again identifies and positions nurses as agents of change. The research described in this thesis goes somewhat to understanding a RNs role in being such a catalyst, as it examines 'what it means for a RN to work in a climate-friendly hospital.'

Harris, Pisa, Talioaga, and Vezeau (2009) believe that providing sustainable healthcare that is environmentally savvy is both complicated and critical.

Kitchin (2014) suggests that healthcare organisations are in fact able to promote quality health care by acting efficiently and responsibly with physical, financial and human resources. The third key component to be discussed is that of social resources.

Social resources

Hospital workers, such as nurses are an important social resource that can aid in the greening of hospitals, and personnel such as these have the ability to influence colleagues in environmental sustainability (Topf, 2005). However, when hospital personnel are unaware of the importance of environmental sustainability, or assume that other areas within hospital departments will take charge of the issue, an environmental numbness occurs (Topf, 2005). Human reaction to the environment falls into two main categories that include active and passive reactions and this phenomenon is largely studied by the discipline of environmental psychology. Rahmani (2016, p. 1) suggests that the phenomenon of environmental numbness which she says is user passiveness, *"is caused by habituation and unawareness toward environmental problems."* However, Rahmani (2016, p. 1) also indicates that *"people are sometimes aware of problematic environmental features but they seem numb towards them and do not act to better the conditions."* Topf (2005) proposes that environmental numbness is associated with the challenging work conditions of hospital employees. Diffusion of responsibility, group ignorance and groupthink are also factors that have been identified as blocking progression within healthcare organisations for greening hospitals (Topf, 2005). Despite instances of environmental numbness blocking the advancement of sustainable healthcare, Hancock (2006, p. 345) puts forward that, healthcare organisations are producing *"new pillars of good organisational behaviour in the forms of social responsibility, ethical investment, sustainable development."*

Prior to discussing the seven key elements of what constitutes a climate-friendly hospital in depth, it is worth reflecting upon some of the historical key significant

drivers of health care and their incorporation of environmental components over the years. This enables a clear picture regarding the transformation from old to new practices. These significant drivers commence with primary health care, leading on to tertiary (hospital) which will include the key elements framework of a climate-friendly hospital.

Significant drivers in the maturing of health care

Over time there have been many drivers leading to the maturing of health care. Just as healthcare treatments and interventions have made significant progress over the years, so too have environmental considerations with regard to health care practices become more prominent.

Ottawa Charter

On November 1986, Ottawa, Canada, hosted the first International Conference on Health Promotion (World Health Organization, 2015). Two hundred and twelve representatives from thirty-eight countries were in attendance (Campbell, 2015). At this conference prerequisites for health were identified and are known as fundamental conditions for health. These are:

- Peace;
- Shelter;
- Education;
- Food;
- Income;
- A stable eco-system;
- Sustainable resources; and
- Social justice and equity.

Alongside these eight fundamentals, though, the Charter identified a framework of six areas of action. These are presented in Table 5.

Table 5
The strategies and descriptions of the Ottawa Charter

Strategy	Action
Build healthy public policy.	<p>Health promotion goes beyond health care. It puts health on the agenda of policymakers in all sectors and at all levels, directing them to be aware of the health consequences of their decisions and to accept their responsibilities for health.</p> <p>Health promotion policy combines diverse but complementary approaches including legislation, fiscal measures, taxation and organizational change. It is coordinated action that leads to health, income and social policies that foster greater equity. Joint action contributes to ensuring safer and healthier goods and services, healthier public services, and cleaner, more enjoyable environments.</p> <p>Health promotion policy requires the identification of obstacles to the adoption of healthy public policies in non-health sectors, and ways of removing them. The aim must be to make the healthier choice the easier choice for policy-makers as well.</p>
Create supporting environments.	<p>Our societies are complex and interrelated. Health cannot be separated from other goals. The inextricable links between people and their environment constitute the basis for a socioecological approach to health. The overall guiding principle for the world, nations, regions and communities alike is the need to encourage reciprocal maintenance - to take care of each other, our communities and our natural environment. The conservation of natural resources throughout the world should be emphasized as a global responsibility.</p> <p>Changing patterns of life, work and leisure have a significant impact on health. Work and leisure should be a source of health for people. The way society organizes work should help create a healthy society. Health promotion generates living and working conditions that are safe, stimulating, satisfying and enjoyable.</p> <p>Systematic assessment of the health impact of a rapidly changing environment - particularly in areas of technology, work, energy production and urbanization is essential and must be followed by action to ensure positive benefit to the health of the public. The protection of the natural and built environments and the conservation of natural resources must be addressed in any health promotion strategy.</p>
Strengthen community action.	<p>Health promotion works through concrete and effective community action in setting priorities, making decisions, planning strategies and implementing them to achieve better health. At the heart of this process is the empowerment of communities, their ownership and control of their own endeavours and destinies.</p> <p>Community development draws on existing human and material</p>

Strategy	Action
	resources in the community to enhance self-help and social support, and to develop flexible systems for strengthening public participation and direction of health matters. This requires full and continuous access to information, learning opportunities for health, as well as funding support.
Develop personal skills.	<p>Health promotion supports personal and social development through providing information, education for health and enhancing life skills. By so doing, it increases the options available to people to exercise more control over their own health and over their environments, and to make choices conducive to health.</p> <p>Enabling people to learn throughout life, to prepare themselves for all of its stages and to cope with chronic illness and injuries is essential. This has to be facilitated in school, home, work and community settings. Action is required through educational, professional, commercial and voluntary bodies, and within the institutions themselves.</p>
Reorient health services.	<p>The responsibility for health promotion in health services is shared among individuals, community groups, health professionals, health service institutions and governments. They must work together towards a health care system which contributes to the pursuit of health.</p> <p>The role of the health sector must move increasingly in a health promotion direction, beyond its responsibility for providing clinical and curative services. Health services need to embrace an expanded mandate which is sensitive and respects cultural needs. This mandate should support the needs of individuals and communities for a healthier life, and open channels between the health sector and broader social, political, economic and physical environmental components.</p> <p>Reorienting health services also requires stronger attention to health research as well as changes in professional education and training. This must lead to a change of attitude and organization of health services, which refocuses on the total needs of the individual as a whole person.</p>
Moving to the future.	<p>Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love. Health is created by caring for oneself and others, by being able to take decisions and have control over one's life circumstances, and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members.</p> <p>Caring, holism and ecology are essential issues in developing strategies for health promotion. Therefore, those involved should take as a guiding principle that, in each phase of planning, implementation and evaluation of health promotion activities, women and men should become equal partners.</p>

(WHO, 2015, pp. 1-5)

The 1986 Charter, when looked at holistically, isn't just speaking about primary health care from a clinical perspective. It is highlighting the inter-relationships

between the many aspects that contribute to positive health outcomes.

Environmental considerations form part of these. Indeed, the relationship between the environment and humans are two elements that are inextricably linked.

Healthcare services that identify themselves as being climate-friendly, or are working toward becoming climate-friendly, are cognisant of this inseparable relationship and enact strategies that strive to achieve positive outcomes in both areas. A simplistic example is in the way that climate-friendly hospitals use environmentally sustainable resources for energy (WHO & HCWH, 2009).

Brundtland Report

1987 saw the emergence of the Brundtland report 'Our Common Future.' The report made the essential connection between humans and the environment. Gro Harlem Brundtland, chairman of the World Commission Environment and Development made the point that:

The environment does not exist as a sphere separate from human actions, ambitions, and needs... the environment is where we all live; and development is what we all do in attempting to improve our lot within that abode. The two are inseparable. (Brundtland, 1987, p. xv)

Since the inception of these principles many health services have worked to reorient their practices to not only promote health but also to reduce negative effects on the environment. Frumkin, Hess, Lubet, Malilay, and McGeehin (2008) acknowledged the 1994 framework for ten essential public health services endorsed by the Centers for Disease Control and Prevention (CDCP)

(2014), as presented in Table 6, by aligning them with climate change examples.

Table 6
The 10 essential public health services with climate change examples

Number	The 10 essential public health services	Frumkin's public health actions
1.	Monitor health status to identify and solve community health problems.	Tracking of diseases and trends related to climate change.
2.	Diagnose and investigate health problems and health hazards in the community.	Investigation of infectious water, food, and vector-borne disease outbreaks.
3.	Inform, educate, and empower people about health issues.	Informing the public and policymakers about health impacts of climate change.
4.	Mobilize community partnerships and action to identify and solve health problems.	Public health partnerships with industry, other professional groups, faith community, and others, to craft and implement solutions.
5.	Develop policies and plans that support individual and community health efforts.	Municipal heat-wave preparedness plans.
6.	Enforce laws and regulations that protect health and ensure safety.	(Little role for public health)
7.	Link people to personal health services and ensure the provision of health care when otherwise unavailable.	Health care provision following disasters.
8.	Ensure competent public and personal health care workforce.	Training of health care providers on health aspects of climate change.
9.	Evaluate effectiveness, accessibility, and quality of personal and population-based health services.	Program assessment of preparedness efforts such as heat-wave plans.
10.	Research for new insights and innovative solutions to health problems.	Research on health effects of climate change, including innovative techniques such as modelling, and research on optimal adaptation strategies.

(CDCP, 2014, p. 1; Frumkin et al., 2008, p. 438)

Although the research presented in this thesis is focused on climate-friendly hospitals and the RNs that work in such organisations, the public health services and actions presented in Table 6 provide an understanding of both the issues and actions required to address the connection between climate change and health. Many of these actions can be initiated within climate-friendly hospitals.

Another key document that concerns itself with human health and environmental issues is, 'Healthy Hospitals, Healthy Planet, Healthy People' (WHO & HCWH, 2009). This document focuses on tertiary health care (hospitals) as opposed to those discussed earlier which are largely related to primary health care.

Climate-friendly hospitals and the framework of seven key elements

The World Health Organization (WHO) in collaboration with Health Care Without Harm (HCWH) (2009) appreciate that becoming a climate-friendly hospital is not straightforward, acknowledging that these large institutions are extremely energy intensive, extensive water consumers and high producers of various waste materials. To assist in the challenge of transitioning to facilities that are more environmentally sustainable, seven key elements were identified by WHO and HCWH to aid hospitals in minimising their harmful effects to both humans and the environment (WHO & HCWH, 2009).

As a result of hospitals contributing massive amounts of environmental pollutants, and as a consequence of needing to reduce operating costs, healthcare facilities are increasingly working toward environmental sustainability. According to McMichael (2013, p. 1342), *"greening of healthcare*

institutions" has an important role to play in relation to climate change, abatement and adaptation. He goes on to state that *"for populations to live sustainably and with good long-term health, the health sector must work with other health sectors in reshaping how human societies plan, build, move, produce, consume, share, and generate energy."* In relation to this health sectors can more actively participate in the seven key elements that have been identified as a means to work toward hospitals that are environmentally sustainable. These are presented in Table 7.

Table 7
Seven key elements of a climate-friendly hospital

Key element	Actions
Energy efficiency.	Reduce hospital energy consumption and costs through efficiency and conservation measures.
Green building design.	Build hospitals that are responsive to local climate conditions and optimized for reduced energy and resource demands.
Alternative energy generation.	Produce and/or consume clean, renewable energy onsite to ensure reliable and resilient operation.
Transportation.	Use alternative fuels for hospital fleets; encourage walking and cycling to the facility; promote staff, patient and community use of public transport; site health-care buildings to minimize the need for staff and patient transportation.
Food.	Provide sustainably grown local food for staff and patients.
Waste.	Reduce, re-use, recycle, compost; employ alternatives to waste incineration.
Water.	Conserve water; avoid bottled water when safe alternatives exist.

(WHO & HCWH, 2009, p. 3)

Each of the key elements will now be explained.

Energy efficiency

Energy efficiency is considered a major element of a climate-friendly hospital. The Department of Health Victoria (2014, para. 1) states "*energy efficiency means using less energy to achieve the same level of outcome, or improved level of outcome for the same amount of energy.*" McGain and Kayak (2011, p. 2) assert that the amount of energy that is consumed for a "*300 bed mid-sized hospital*" equates to "*5,000 Victorian households,*" stating that the ability to reduce such levels of energy consumption is the responsibility of the healthcare organisation itself. Some ways in which energy efficiency can be improved is through climate-friendly architecturally designed hospitals (Burger & Newman, 2009) and also through changes in clinical practices.

As of March 2016 the total number of RNs registered with the Nursing and Midwifery Board Australia (NMBA) (2016) was 271,423. As previously alluded to, RNs are in positions to act as agents of change and as such they have a role to play with regard to practices that impact upon the energy consumption of the hospitals in which they work. Harris et al. (2009, p. 103) claim that nurses are increasingly becoming aware of energy consumption and are attempting to conserve energy by "*turning off unused lights, monitors, pumps, and computers.*" The authors also state that switching to compact fluorescent lights and promoting natural light within the built environment aids in the conservation of energy. Burger and Newman's (2009, p. 12) research on hospitals and sustainability found that in Australia there have been several case studies whereby "*changing older lights to more efficient models has resulted in considerable savings.*" Another key element that is being addressed is that of designing hospital buildings that are climate-friendly.

Green building design

Mellon (2009) points out that 40 percent of global greenhouse gas emissions can be attributed to buildings; they draw on 32 percent of global construction resources and are responsible for 40 percent of landfill waste. To this end many hospitals are old in design and were constructed many years ago but cannot be simply knocked down and re-built. Traditional hospital buildings are a major contributing factor to inefficiency but in an attempt to address these environmental concerns, hospitals are being architecturally designed as much as possible to contribute to environmental sustainability (Burger & Newman, 2009). Medical care, said Horsburgh (1995) more than two decades ago, cannot be separated from the buildings in which it is delivered and the quality of space in such buildings affects the outcome of medical care. Architectural design is thus an important part of the healing process. To indicate the extent of the problem many countries recognise the need to re-design or build new hospitals. Examples of hospitals that are implementing environmental sustainable initiatives are provided in Table 8.

Table 8
Examples of environmentally sustainable hospitals

Hospital	Country	Implementations
Rush University Medical Center.	Chicago, Illinois, United States of America.	The hospital used eco-friendly materials during its construction in 2012. It has green roofs that help curtail the amount of storm water flowing into Chicago's waterways.
Mount Elizabeth Novena Hospital.	Novena, Singapore.	This hospital has incorporated high-efficiency water systems, occupant-sensing lighting systems. The hospital also has a green roof to aid in maintaining a constant temperature.

Hospital	Country	Implementations
Great Ormond Street Hospital.	London, United Kingdom.	Opened in 2012, the new section of the hospital implements an under-floor reversible system for heating and cooling. The hospital hopes to offset 20,000 tons of carbon dioxide emissions yearly through its waste heat recovery system.

Adapted from Simon (2014)

Australia, in its quest to adopt a more climate-friendly approach within healthcare, has commenced utilising the technical manual Green-Star-Healthcare (v1) (Langdon, 2009). This manual was introduced by the Green Building Council of Australia (GBCA) on June 2009, and the Healthcare v1 tool has been designed to help healthcare facilities to:

- a) Minimise the environmental impact of their buildings;
- b) Improve patient health outcomes and staff productivity;
- c) Receive recognition for green leadership; and
- d) Achieve real cost savings.

(Green Building Council of Australia, 2014, p. 1)

As already stated, many countries are beginning to address inappropriate hospital designs that adversely impact on the environment and also staff and patients. Numerous studies such as those by Bartley, Olmstead, and Hass (2010), Rechel, Buchan, and McKee (2009), Berry et al. (2004), Huisman, Morales, van Hoof, and Kort (2012), Joseph and Rashid (2007) and Williams (1988) have now confirmed the positive effects of certain design features in medical facilities by analysing changes in employee and nursing turnover, medication errors, and hospital acquired infection rates. It is now undisputed

that an appropriate and efficient design of a building can have a positive effect on the health and well-being of employees and patients. Environments that have been carefully planned, can, according to Ulrich (2000, pp. 1-3) *"reduce anxiety, lower blood pressure and lessen pain..."* in patients, and can *"...help employees cope better with workplace stress, reduce absenteeism, may lower turnover...support employees in providing quality care."* The author cited large windows overlooking peaceful sceneries (such as naturalistic views of trees) as a key contributor to such powers of healing (Ulrich, 2000) and Ulrich's (1984) landmark 1984 study which found that patients randomly assigned to a room corridor with windows overlooking trees were discharged to home about one day earlier than those assigned to rooms with windows overlooking a brick wall.

As noted in Table 7 climate-friendly hospitals are facilities which are trying to implement strategies to address their carbon footprints. A key element to mitigate such impacts from hospitals and that which climate-friendly hospitals are implementing is alternative energy generation.

Alternative energy generation

Healthcare services that utilise alternative energy generation are those which *"Produce and/or consume clean, renewable energy onsite to ensure reliable and resilient operation"* (WHO & HCWH, 2009, p. 3). The United States Department of Energy (US DoE) (2011) describe how the activities within hospitals mean that they consume approximately two and one-half times the energy of a standard office building. As a result of requiring enormous amounts of power to sustain the running of a hospital twenty-four hours per day, seven days a week, some facilities are working with distributed energy resources

(DER). DERs *"are electric generation units...located within the electric distribution system at or near the end user"* (Capehart, 2014, p. 1). In other words healthcare services are increasingly searching for alternative ways of obtaining energy closer to their organisation, rather than obtaining energy from a centralised power supplier such as a power plant. According to Capehart (2014), DERs include generators, on-site power systems, or even back-up generators. DER technologies also include solar cells, wind systems, biomass and geothermal (Renewable Energy World, 2014). Grace Communications Foundation (2014, p. 1) recognise such systems as, *"Distributed renewable energy systems"* that *"generate clean, renewable electricity on site... "* A non-profit organisation that provides solutions for healthcare sectors as they work to create a safer and greener healthcare community is Practice Greenhealth (Practice Greenhealth, 2015). The goal of Practice Greenhealth is to work toward sustainable healthcare that encompasses the environment, patients and staff (Practice Greenhealth, 2015). In addressing energy requirements, Practice Greenhealth (2014) claims that for a hospital's energy system to work more efficiently, the practice of supply-side management should be considered. Supply-side management is an *"approach that seeks the most cost-effective ways to procure and distribute the needed energy supply"* (Practice Greenhealth, 2014, p. 1).

Given that approximately two to three percent of a hospital's budget is attributable to energy consumption some health care services are opting to use co-generation which addresses both the economic and environmental issues faced by health organisations (Private Hospital, 2009). Co-generation is *"a high-efficiency energy system that produces either electricity (or mechanical*

power) and valuable heat from a single fuel source" (New South Wales Trade and Investment, n.d, p. 1).

In addition, the result of a European research project developed by the University of Florence - Centro ABITA on adopting energy saving strategies found ways to reduce the annual energy demand in new and retrofitted hospital buildings (Sala, Alcamo, & Nelli, 2017). The main goal of the project was the integration of strategies for energy efficiency in the hospital sector. The project took into account improving environmental quality and ecosystems, current regulations and ways to promote sustainable management of natural resources. Innovative strategies for the integration of renewable energies in buildings were combined with bioclimatic design in order to improve thermal control and comfort, building control and management, natural ventilation, upgrading energy efficiency, and natural light (Sala et al., 2017). Moreover, the use of photovoltaic modules, high efficiency heat pumps, integration with surrounding green areas and the use of vegetation inside buildings were explored as opportunities to both reduce energy demand and improve patient comfort. Positive results were achieved related to indoor comfort, energy savings, and CO₂ (Carbon Dioxide) not emitted through the energy solutions adopted (Sala et al., 2017).

As the project described above attests, and according to the WHO and HCWH (2009), hospitals are in fact able to decrease the output of greenhouse gasses while simultaneously reducing their energy costs and not negatively impacting on patient care. Utilising the alternative energy resources as identified above could prove advantageous particularly as Australian hospitals, according to

Burger and Newman (2009), are working toward maintaining an ambient temperature of around 23 degrees. Such temperature control requires sustained energy consumption, be it for heating or cooling, particularly in a climate such as Australia that is known for its extremes. Another key element that contributes to the reduction of hospital greenhouse gas emissions and thus contributing to climate-friendly status is transportation.

Transportation

Transportation issues for staff and patients are also a key element with regard to climate-friendly status with transport demands becoming increasingly dramatic. Vehicles used to transport patients, bring staff to and from work, deliver supplies and remove waste contribute negatively to the environment. The WHO and HCWH point out that in addition to the above detrimental environmental contributions, healthcare services are transport-intensive (WHO & HCWH, 2009). As such, consideration needs to be given to strategies that minimise the negative effects of the reliance on vehicles within and by hospital staff, patients and visitors that attend these facilities. Green transport has been touted as a viable and possible solution. Bjorklund (2011, p. 12) defines green transport as a, *"transportation service that has lesser or reduced negative impact on human health and the natural environment when compared with competing transportation services that serve the same purpose."*

The health care services at Addenbrooke's Hospital, Cambridge, in the United Kingdom (UK) are addressing the issues surrounding negative impacts made to the environment through the use of their multiple vehicles by instigating travel initiatives (Cosford, 2009). Some of these initiatives include encouraging the

use of bus services, cycling to work, enhancing park and ride innovations and improvements, and encouraging car pooling (Cosford, 2009). St John of God Hospital, Subiaco, Perth, Western Australia, also implemented a Travel Green Plan which incentivises cycling, walking and encouraging the use of public transport through the use of economic incentives (Department of Transport (DoT), 2013). Economic incentives include a \$5 per day allowance *for "staff that choose to Travel Green and give up their parking privileges"* (DoT, 2013, p. 1).

Addressing hospital related transport issues for staff and/or patients and/or visitors can also contribute to reduced air pollution. This in turn could contribute to a reduction of exhaust related pollutants which studies suggest are associated with increased number of adult cardiovascular and paediatric respiratory hospitalisations (Samoli et al., 2016). The introduction of hybrid vehicles for health use, conducting more telemedicine and telecom/videoconferencing, and also by purchasing from local suppliers as opposed to sourcing supplies that have to be transported from greater distances (Karliner & Guenther, 2011), are all examples of practices that some hospitals are implementing to become climate-friendly.

Food

Cognisant of health and its relationship to nutrition, food is known for its important component of healing (Nazarko, 2013). Without healthy nutrition, the body is susceptible to a co-morbid epidemic of obesity, diabetes and hypertension (Lin, Mou, & Lagoe, 2011). Despite known health benefits, food

and its associated life-cycle processes can also impact negatively upon the environment and is an area that many climate-friendly hospitals are addressing.

The Blue Mountains City Council (BMCC) (n.d) in New South Wales Australia, propose that the life-cycle of food products impacts the environment by virtue of the process by which it is produced, packaged, transported and disposed of. This city council contends that the whole process of food production, packaging and transportation contributes to 26 percent of greenhouse gas pollution, 47 percent of water consumption and 60 percent of the ecological footprint in Australia (BMCC, n.d). Climate-friendly hospitals are mindful of procurement practices related to the purchase of food and can behave in ways that can contribute to the reduction of greenhouse gasses that negatively affect the climate. Although healthcare services can benefit from sourcing and procuring produce locally, Sachs and Feenstra (2008) remind us that there is still work to be done in the area of connecting farm-hospital initiatives. The authors noted that in the United States of America, Northern Californian hospitals have contractual obligations, financial restrictions and a dependency on already established regulatory procedures for both menu planning and meal production (Sachs & Feenstra, 2008). Despite challenges, these issues can be overcome.

Despite food service departments within healthcare organisations being extremely active in the consumption of resources, Wilson and Garcia (2011a) explored strategies regarding the implementation of green initiatives into food operations in Canadian hospitals. The authors conducted a broad literature search spanning the years 2001-2010 using key words such as: sustainability, foodservices, healthcare, hospitals and going green (Wilson & Garcia, 2011a).

Their findings showed that healthcare services had the potential to implement environmentally friendly practices, if they had the support from significant *"food service workers, managers, dieticians and administrators"* (Wilson & Garcia, 2011a, p. 46).

The same authors conducted a study on eight Canadian hospitals with 68 participants that examined the beliefs, behaviours and attitudes of various workers that had input into food operations (Wilson & Garcia, 2011b). The study identified that there was a *"need for education on environmental impacts of food choices"* and as food experts the authors point out that dieticians have the ability to deliver a *"change in education, practice, and policy development"* (Wilson & Garcia, 2011b, p. 117). It is not only the purchase of food and food related products that require attention. The disposal of plate waste as well as packaging also contributes negatively to the environment (Williams & Walton, 2011; UK Department of Health, 2005; Robichaud, Cormier, & Gaudet-Leblanc, 1995). Zhao and Deng (2014) highlight that food waste is a key element in urban solid waste. In addition to waste related to food there are other types of waste that contribute negatively on the environment. Brannen (2006) provides some examples of various waste streams which are discussed under the next key element - waste.

Waste

There has been a noticeable increase in the number of hospitals worldwide and as the numbers of healthcare facilities grow, so too does their ability to negatively impact upon humans and the environment through their waste disposal practices (Qadir et al., 2014). The definition of waste may appear to

be quite simple, however, it is surprisingly complex. For example Oelofse and Godfrey (2008) remark that waste does not necessarily depend upon composition or the end-use of matter. Australia's definition of waste illustrates this complexity. In a report by Allan (2012) for the Department of Sustainability, Environment, Water, Population and Communities, the author noted that each of Australia's jurisdictions had its own waste classification system.

Healthcare services produce waste in a number of areas. Amin, Gul, and Mehrab (2013) describe how hospital waste can be divided into risk waste and non-risk waste. The authors provide examples of risk waste as infectious waste, pathological, pharmaceutical, sharps, chemicals, geno-toxic and radioactive waste (Amin et al., 2013). General waste products are items such as used bandages, plaster casts, paper and cardboard. Brannen (2006) identifies four basic waste streams, their typical disposal cost per ton, and the target percentage of total waste potential assuming best practices. These are outlined in Table 9.

Table 9
Basic Waste Streams

Waste program and/or type	Definition	Target as percentage of total waste	General disposal methods	Typical cost for disposal
Waste Reduction Programs (recycling, reuse, source reduction).	Reducing: Using less product in the first place, thereby generating less waste. Reusing: Materials exchanges, using a product until it is no longer usable. Recycling: Refuse which is reprocessed in to new products.	20-40%.	Most recyclables are shipped off site for processing and subsequent reuse.	Wide range: - Cardboard and paper should generate revenue. - Glass and plastics typically cost. Objective: Total cost of program should best landfill costs (i.e., avoided landfill costs pay for the program).

Waste program and/or type	Definition	Target as percentage of total waste	General disposal methods	Typical cost for disposal
Infectious waste.	Solid or liquid wastes that have a significant potential for transmitting infection or require special handling due to state regulations and some federal regulations.	8-15%.	Treatment: Such as autoclave then landfill. 10% of total regulated medical waste requires incineration.	Off-site Treatment: US \$0.26-US \$0.38 per lb. US \$500-8-- per ton.
Hazardous Chemical Waste.	Solid or liquid waste containing flammable, toxic, corrosive, or reactive chemicals. Also includes a special hazards category (i.e. radioactive and listed wastes).	<1%.	Managed according to the U.S. Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and local and state regulations and shipped off-site for proper disposal.	Up to US \$5000 per ton depending upon material.
General Solid Waste.	Solid waste that are not hazardous, infectious, or recyclable; may include some food wastes, trash, and construction and demolition waste (although those too can be recycled).	50%.	Landfill or municipal solid waste incinerator.	Wide range depending upon area of country: US \$0.02-US \$.50 per lb. US \$33-US \$100 per ton.

(Brannen, 2006, p. 86)

As a result of recognising the amount of waste that is produced and understanding the implications of this, Australian hospitals are becoming more pro-active in recycling materials such as paper, cardboard, glass, plastic and metal (Private Hospital, 2009). Burger and Newman (2009) report that factoring in strategies and processes regarding waste into the planning stages of future

hospitals will be of economic and environmental benefit. An accurate financial cost associated with waste disposal within Australia is difficult to obtain due to the separate waste classification system in each jurisdiction (state and territory). An example of waste generation and disposal costs for Victorian Public Healthcare Services is provided below:

- During the year 2010-2011 an estimated 42,000 tonnes of solid waste was generated;
- Approximately 8,600 tonnes were recycled;
- 4,300 tonnes were clinical waste with the remainder being general waste; and
- Cost of waste disposal was around \$17 million, two-thirds of the cost went towards treatment and disposal of clinical waste.

(State Government of Victoria, 2014)

As alluded to, the continued growth of hospitals are predicted to lead to an increase in waste generation. The Victorian government predict that an annual amount of 52 tonnes of solid waste could be generated by 2021-22 (State Government of Victoria, 2014). Not only are hospitals attempting to introduce sustainable practices for economic benefits, current literature indicates that hospitals are becoming increasingly sentient of the negative impacts that they make on humans and the environment due to their production and disposal of waste (Kaplan, Sadler, Little, Franz, & Orris, 2012; Nicholson, 2014; Qadir et al., 2014; Sharma, 2013; Stall, Kagoma, Bondy, & Naudie, 2013).

Pant (2012) conducted a survey in Dehradun, India on 100 hospitals to ascertain waste management processes. Results from the 13 item instrument

that was used to collect data, identified that smaller hospitals appeared to have greater negative impacts on the environment than did larger hospitals. This result was thought to be due to mismanagement of waste segregation.

Ferreira and Teixeira (2010) noted problems with waste management practices in healthcare organisations in the Algarve, Portugal. A multi-method study comprising of hospital visits, questionnaires and interviews was conducted on waste disposal management and hazard awareness of healthcare staff of three hospitals. The findings of the study identified incorrect separation of hazardous waste leading to improper methods of disposal. As such, potential harm to workers, external communities and the environment were identified (Ferreira & Teixeira, 2010).

In Brazil, ten normative documents deal directly or indirectly with the control and disposal of hospital waste (Blass, Gouvea da Costa, Pinheiro de Lima, & Borges, 2016). *"The National Environment Council (CONAMA), and the National Health Surveillance Agency (ANVISA), have special resolutions,"* and additionally, *"the Brazilian Technical Standards Association (ABNT) issued six standards on hospital waste"* (Blass et al., 2016, p. 56). Resolutions include: ANVISA Resolution no. 63 - defines good operating practices, CONAMA Resolution no. 358 - identifies the need to treat and dispose of waste from healthcare services, and ANVISA Resolution no. 306 - addresses the management of waste from these services while the ABNT legislates on:

- Waste transport;
- Methods for the collection of perforating/cutting materials;

- Internal and External collection of waste under hygienic and safe conditions;
- Classification of materials and definition of terms; and
- Required procedures for intra-establishment management of waste generated by health-care services sector. (Blass et al., p. 56)

Despite the existence of this comprehensive legal framework, Da Silva, Hoppe, Ravanello, and Mello (2005) concluded from a study conducted on 91 health-care facilities, including 21 hospitals, 48 health centres and 22 clinical laboratories, that in Brazil the practices in most cases do not comply with current legislation.

According to Nazar, Pordeus, and Werneck (2005) the existence of regulations does not guarantee the success of environmental initiatives. In Brazil, scarcity of regulations that define the consumption of other resources such as water, electricity and fuel is noteworthy. As stated, resources such as water are a worthy contender especially when discussing its excessive use in the day-to-day running of hospital practices.

Water

Healthcare facilities have been noted to consume large quantities of water during their daily operations (Priyalal & Rajini, 2015). Figure 3 portrays end uses of water in hospitals (Environmental Protection Agency (EPA), 2012). As Figure 3 illustrates, the end use of water in a hospital is varied. What is known, however, is that the many and varied procedures and practices undertaken within hospitals are known to make an impact on water demands. One example is haemodialysis. This is a treatment provided to individuals whose kidneys fail

to keep their blood clean and remove extra fluids in the form of urine (Kidney.org., 2014).

End Uses of Water in Hospitals

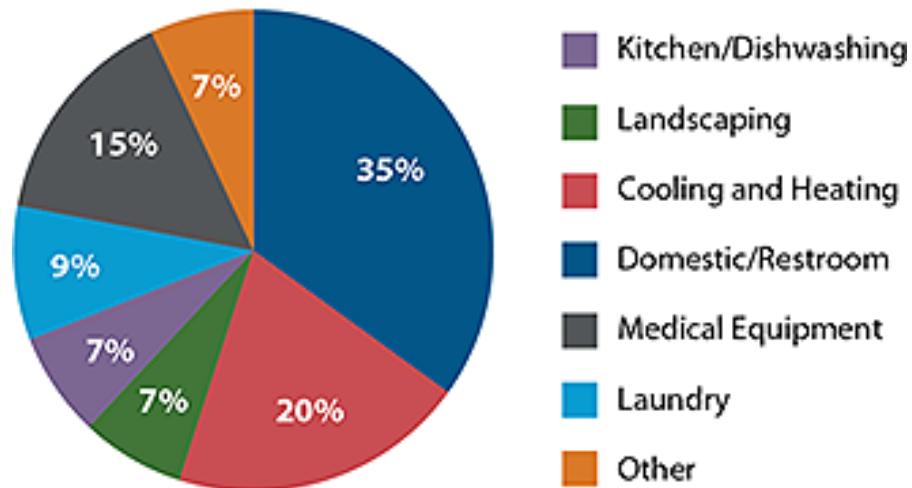


Figure 3. End uses of water in hospitals EPA (2012, p. 1)

Haemodialysis has been described by Agar (2010, p. 448) as being a "*water-voracious and energy-hungry healthcare procedure*" that also makes an impact on the environment. According to the 39th annual report published by the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) (2016), the Haemodialysis Working Group was able to quantify the number of patients requiring haemodialysis within Australia. From 31st December 2011 to the current data 31st December 2015 the number of people on the ANZDATA (2016) register has risen from 9003 to 9947 respectively within Australia. Of the 9947 dialysing patients only 1165, that is, 32 percent of patients are dialysed at home indicating that the majority of patients are dialysed at hospital. According to the Agency for Clinical Innovation (ACI) a patient that receives haemodialysis may be exposed to more than 300 litres of water per week that crosses the

semi-permeable membrane of a haemodialyser (Agency for Clinical Innovation, 2016).

It is well known that water is a precious commodity. Shu-Qing (2015) affirms that an adequate potable water supply has been one of the main constraints of development since the time of the early European settlement. Hughes (2011) describes Australia as being 75 percent semi-arid, this is shown in Moran and Elvin's (2009) map, Figure 4.

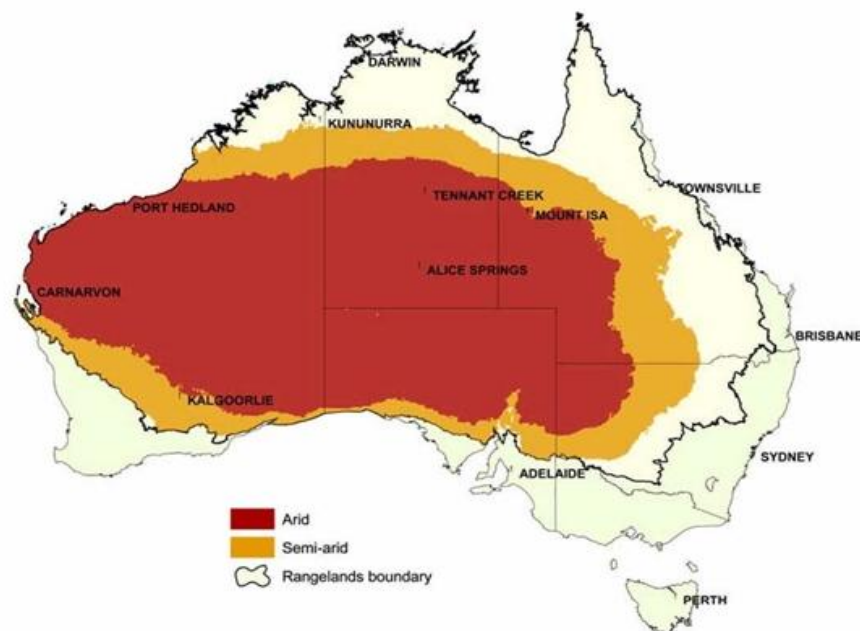


Figure 4. Coping with complexity: Adaptive governance in desert Australia
Moran & Elvin, (2009, p. 417)

During the 2000s Australia experienced drought conditions that lasted a decade. This period was known as Australia's 'Millennium Drought' (Chong, 2014). As a result of water concerns, capturing and re-using water is vital and of particular significance in healthcare organisations who are large users of potable water. Agar (2010) provides an example of how the healthcare organisation in which he works in Victoria, Australia, captures approximately

100 000L/week of reverse osmosis reject water from haemodialysis. This is water that was once discarded. This reject water now *"provides autoclave steam for instrument sterilization, ward toilet flushing, janitor stations and garden maintenance"* (Agar, 2010, p. 448).

With climate change already posing an issue in regards to water security within Australia (Chong, 2014; Post & Moran, 2013), South East Queensland is beginning to develop Systems Operating Plans for water security (Queensland Water Commission, 2012). Garnaut (2008), an economist, contends that by the year 2100 certain major city infrastructure within Australia could suffer extreme impacts to water supplies.

With no mitigation measures set in place, Garnaut identifies the following states and territories whose water supplies will become extremely impacted through climate change, these include: the Australian Capital Territory, New South Wales, Queensland, South Australia, Victoria and Western Australia (Garnaut, 2008). This news is concerning especially when the largest hospitals are located within these metropolises. Hospitals, being major water users, are increasingly going to have to instigate mitigation measures with regard to water usage.

Australian hospital administrators are beginning to recognise that excessive water consumption not only has detrimental effects on the environment, but also affects their triple bottom line. Triple bottom line is an accounting framework that pushes past the traditional economic measures of profits and investments to also include social and environmental dimensions (Slapper & Hall, 2011).

A combination of these concerns could be the reason some hospitals are now commencing water saving strategies. An example of water mitigation strategies is occurring at the Melbourne Children's Hospital in Victoria where harvested rainwater from roof areas is utilised alongside treated black water for flushing toilets, feeding cooling plants and watering the hospital grounds (McLaren, 2009).

The above discussion comprehensively elucidated the seven key elements incorporating examples from case studies. This framework is being used as a foundational framework for many healthcare services worldwide in order that they may mitigate their carbon footprint and also to potentially save money. In order to implement such changes some hospitals have begun to change the way they go about things. This is especially so in climate-friendly hospitals.

Such changes include the way in which nurses are undertaking their clinical practice. As previously mentioned there were 271,423 RNs registered to practice in March 2016 (NMBA, 2016). Of this total number many RNs such as those who participated in this study, are implementing some of the seven key elements. The sheer number also signifies that nurses are aptly placed to engage in and become drivers of change. Nurses as change agents will be discussed later in this chapter but are key personnel to deliver health care without harm.

Health Care Without Harm

Health Care Without Harm (HCWH), (a non-profit organisation) launched a ten step agenda in Buenos Aires, 13 October 2011 to *"foster greater ecological sustainability and environmental health in the health care sector around the*

world" (Health Care Without Harm, 2011, p. 1). A more comprehensive explanation of the agenda can be found in 'Global Green and Healthy Hospitals: A Comprehensive Environmental Health Agenda for Hospitals and Health Systems Around the World' (Karliner & Guenther, 2011). The ten step agenda goals viewed in Table 10 align well with the seven key elements described above and according to Karliner and Guenther (2011, p. ii) all speak to a future vision of *"Toward Regenerative Health Care."*

Table 10
Contemporary frameworks on health services and climate change

Agenda	Agenda Intent
Leadership.	Prioritise environmental health.
Chemicals.	Substitute safer chemicals with safer alternatives.
Waste.	Reduce, treat and safely dispose of healthcare waste.
Energy.	Implement energy efficiency and clean renewable energy.
Water.	Reduce hospital water consumption and supply potable water.
Transportation.	Improve transportation strategies for patients and staff.
Food.	Purchase and serve sustainably grown, healthy food.
Pharmaceuticals.	Safely manage and dispose pharmaceuticals.
Buildings.	Support green and healthy hospital design and construction.
Purchasing.	Buy safer and more sustainable products.

Adapted from Karliner and Guenther (2011)

Karliner and Guenther (2011) describe what a green and healthy hospital portrays. This description is also useful to conceptualise a climate-friendly hospital as both work towards the same aspirations:

A green and healthy hospital is one that promotes public health by continuously reducing its environmental impact and ultimately eliminating its contribution to the burden of disease. A green and healthy hospital recognizes the connection between human health and the environment

and demonstrates that understanding through its governance, strategy and operations. It connects local needs with environmental action and practices primary prevention by actively engaging in efforts to foster community environmental health, health equity and a green economy. (Karliner & Guenther, 2011, p. 6)

Health Care Without Harm was one of the sponsors of the 'Healthier Hospitals Initiative' (Healthier Hospitals Initiative (HHI), 2012).

Healthier Hospitals Initiative

Launched in 2012 in the United States of America (USA) the Healthier Hospitals Initiative (HHI) (a national campaign) was supported by three non-profit organisations: Health Care Without Harm, The Center for Health Design and Practice Greenhealth (HHI, 2012). Thirteen health systems supported the HHI in the interim period, and more than 500 hospitals across North America joined HHI to address environmental stewardship, this was irrespective of their size (HHI, 2012). The Healthier Hospitals Initiative was a three year campaign that was nicknamed 'Challenge.' This nickname arose as a result of the six challenges that were identified as being a matter of priority. These challenges are presented in Table 11.

Table 11
Healthier hospitals initiative six challenges

Challenge	Challenge objectives	Menu of options
Healthier Food.	Promote healthfulness by increasing access to healthier, more sustainable food choices.	<ul style="list-style-type: none"> • Take the Balanced Menus Challenge and reduce meat purchases by 20%. • Promote healthy beverages. • Increase procurement of local and sustainable food.
Leaner Energy.	Reduce energy use to improve organizational performance.	<ul style="list-style-type: none"> • Partner with ENERGY STAR® for energy

Challenge	Challenge objectives	Menu of options
		performance tracking and conservation. ¹
Less Waste.	Implement a comprehensive waste management program to minimize financial environmental and safety impacts.	<ul style="list-style-type: none"> • Gather baseline data. • Recycling. • Red bag reduction. • Construction & demolition debris recycling.
Safer Chemicals.	Replace products that cause or exacerbate health problems with chemically safer alternatives.	<ul style="list-style-type: none"> • Mercury elimination. • Green cleaning. • DEHP and PVC reduction. • Healthier interiors.
Smarter Purchasing.	Aggregate the purchasing power of the health care sector to accelerate innovation in the supply chain.	<ul style="list-style-type: none"> • Pledge to support the environmentally preferred attributes in the Standardized Environmental Questions for Medical Products. • Surgical kit reformulation. • EPEAT computer purchase for environmentally preferred products. • Single-use device reprocessing.
Engaged Leadership.	Actively engage board, management, and physician leadership in the sustainability agenda.	<ul style="list-style-type: none"> • Create an organizational structure. • Adopt a sustainability strategic plan. • Develop a sustainability budget.

(HHI, 2012, p.1)

Since the inception of the Healthier Hospitals Initiative, three milestones have been published to date:

1. 2012 Milestone Report: *'Leading Communities to a Healthier Future'* (Healthier Hospitals Initiative (HHI), 2013);
2. 2013 Milestone Report: *'Leading Communities to a Healthier Future'* (Healthier Hospitals Initiative (HHI), 2014); and
3. 2014 Milestone Report: *'Leading Communities to a Healthier Future'* (Healthier Hospitals Initiative (HHI), 2015).

¹ Energy Star is a United States voluntary program that was established in 1992 by the Environmental Protection Agency to aid both businesses and individuals economically as they implemented energy efficient practices in their goal to protect the planet ([Energy Star, n.d.](#)).

Highlights from the HHI reports are provided in Table 12 and show how the Healthier Hospitals Initiative Challenge contributed to some hospitals in the United States of America becoming climate-friendly through participating in environmental stewardship.

Table 12
Highlights from the three Healthier Hospitals Initiative reports

Year	Some highlights from three years reporting	Number of hospitals contributing to data
'2012 Milestone Report: <i>Leading Communities to a Healthier Future.</i> '	<ul style="list-style-type: none"> Over 50 million pounds of materials recycled, plus an additional 61.5 million pounds of construction and demolition waste reused/recycled. \$32,089,776 saved due to single-use medical device reprocessing. Nearly \$9 million spent on local/sustainable food options. \$19,029,640 spent on healthier Poly Vinyl Chloride/Diethylhexylphthalate PVC/DEHP free medical products. 	> 350 hospitals.
'2013 Milestone Report: <i>Leading Communities to a Healthier Future.</i> '	<ul style="list-style-type: none"> Of 110 reporting hospitals, 58% reported that more than 15 % of food budget is local and sustainable food. Based on 160 reporting hospitals, 51,000 metric ton decrease in greenhouse gas emissions was calculated. 39 hospitals diverted 82.5% of construction and demolition waste from landfill. 61 reporting hospitals (87.2%), used at least one PVC/DEHP free product line. An increase of \$55,934,216 in Electronic Product Environmental Tool (EPEAT) purchasing. 	638 hospitals.
'Leading communities to a healthier future: 2014 Milestone Report.'	<ul style="list-style-type: none"> 146 hospitals spent 18 percent of their budget on local sustainable food. 73,600 metric tons in greenhouse gas emissions was achieved, equivalent to removing 15,600 vehicles of the roads. 457 hospitals have achieved diverting an aggregate of 445,722.37 tons of material from landfill. 172 hospitals were reported to be using at least one PVC/DEHP free product. 	> 900 hospitals.

Adapted from HHI (2013; 2014; 2015)

The table above also indicates that member hospitals have increased in number over the release of the three reports.

The USA is not the only country attempting to achieve a healthier hospitals approach. The United Kingdom (UK) is also developing healthier hospitals with the Sustainable Development Unit playing a key role within health organisations.

The Sustainable Development Unit

In April 2008 the Sustainable Development Unit (SDU) commenced operating out of Cambridge in the UK. Working on behalf of health and care systems in England, the SDU supports the National Health Service (NHS), Public Health and Social Care Systems in promoting environmental and social sustainability (Sustainable Development Unit (SDU), 2014). This is achieved through engaging health systems to identify frameworks, networks and mechanisms that will enhance healthier environments that are conducive to sustainable living. The SDU also encourages communities and services to become more resilient to climate-change and adverse weather events. To ensure the SDU fulfils its obligations as a leader in carbon mitigation, the unit is jointly funded by National Health Service (NHS) England and Public Health England (SDU, 2014).

To achieve its aim as a leader in carbon mitigation the SDU has implemented a 'Route Map' to enhance the viability of the environment, health and economics for NHS hospitals (Sustainable Development Unit (SDU), 2011). The 'Route Map' is applied using three principles: innovation, standards and behaviours. These principles are said to move the system from one of a 'from' approach to one that is a 'to' approach. The movement is depicted in Table 13.

Table 13
Transformation

From	To
Health care as an institution led service.	Health and social care as part of the community.
Curative and fixing medical care.	Early intervention and preventative care.
Sickness.	Health and well-being.
Professional.	Personal.
Isolated and segregated.	Integrated and in partnership.
Buildings.	Healing environments.
Decision making based on today's finances.	An integrated value of the future which accounts for the impacts on society and nature.
Single indicators and out of date measurements.	Multiple score card information and in real time.
Sustainability as an add on.	Integration in culture, practice and training.
Waste and over use of all resources.	A balanced use of resources where waste becomes a resource.
Nobody's business.	Everyone's business.

(SDU, 2011, p. 5)

Engagement with the literature uncovered another international concept on climate-friendly initiatives called climate-friendly programs. These programmes according to Sittel (2011) are unique to Germany. They examine what hospitals of the future will require so as to be considered a global green healthcare provider that complies with being climate-friendly. An example is the Asklepios Green Hospital Program.

The Asklepios Group

The Asklepios Green Hospital Program further builds upon the WHO and HCWH (2009) Healthy Hospitals, Healthy Planet, Healthy People's seven key elements and the Ten Step Agenda headed by HCWH (2011) namely 'Global

Green and Healthy Hospitals' (2014) to include twenty-nine elements. These elements are identified in Figure 5. Sittel (2011) proposes new elements with regard to green aspects in hospital planning, and cites the Asklepios Group's progress since 2009, indicating that the program had more than 111 hospitals and 36,000 other care organisations as its members.

Key areas and topics inside the Green Hospital Program

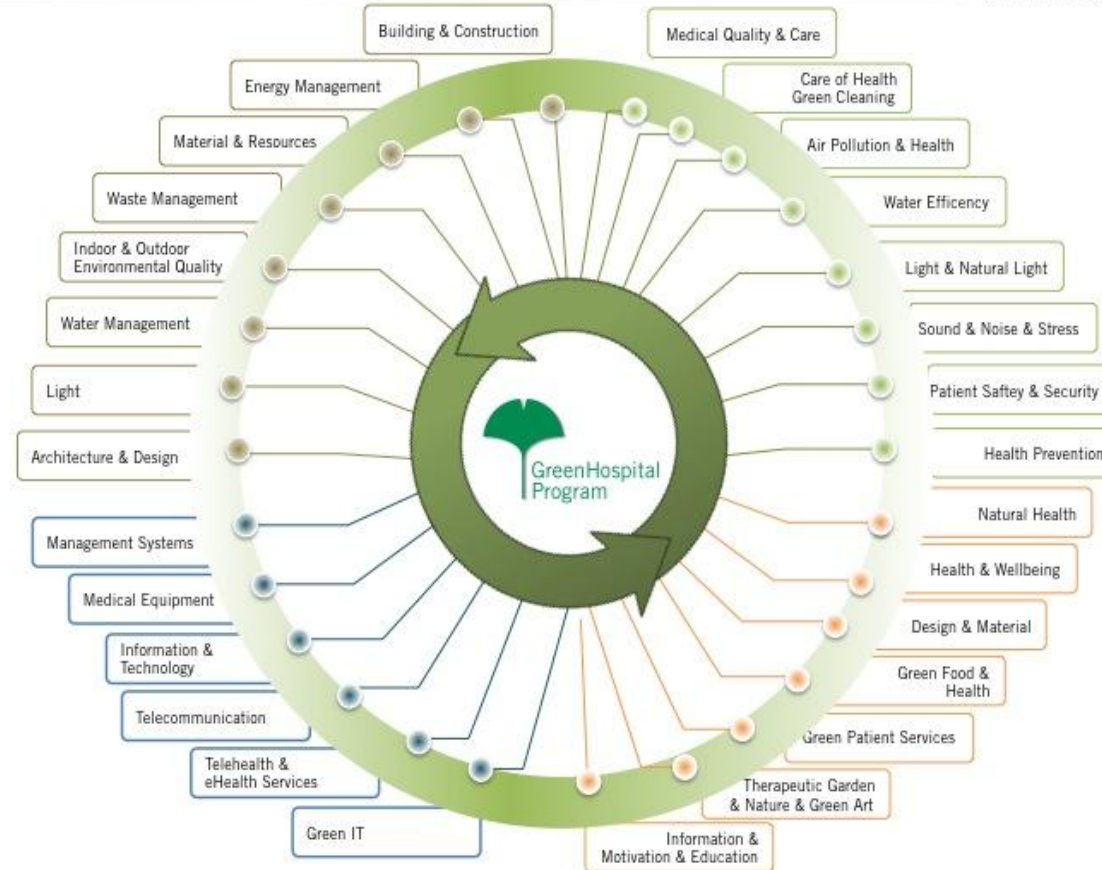


Figure 5. Key areas and topics inside the green hospital program
(Green Hospital Program, n.d., p. 11)

It is of interest to this study that although the Green Hospital Program has twenty-nine key areas and topics, the majority of features from the WHO and HCWH (2009) seven key element framework remain pertinent even though they may be addressed somewhat differently. Similarities between a climate-friendly hospital and the Asklepios green hospital program are illustrated in Table 14.

Table 14
Similarities between a climate-friendly hospital framework and a green hospital program

Climate-friendly hospital	Green hospital program
Energy efficiency.	Energy management.
Green building design.	Design and material/architecture and design/material and resources/building and construction.
Alternative energy generation.	Light and natural light/light.
Transportation.	Not identified.
Food.	Green food and health.
Waste.	Waste management.
Water.	Water efficiency/water management.

Adapted from WHO and HCWH, (2009); Green Hospital Program, (n.d.)

Although similarities between a climate-friendly hospital and that of the green hospital program have been identified in Table 14 one key element that has not been addressed within the Green Hospital Program is that of transportation.

The previous discussion on what global healthcare services are doing to compliment the seven key elements framework show that changes are being made due to an awareness of how the functioning of hospitals can impact on both humans and the environment, and what needs to be done to become

environmentally responsible. The increasing numbers of participating healthcare services portrayed show that for some of these changes to be executed hospital services must have been supported in some way by professionals who work within them.

The discussion above has highlighted international approaches to environmentally friendly frameworks, but given that the study setting for this research is in Australia, attention is now turned to the national picture.

Australia's healthcare response to global climate change

The Australian healthcare sector has been identified as being over indulgent in its use of energy, waste production and high water consumption (Johnson, 2010). Despite such an increasing recognition, Australian health organisations do not yet have a national agenda such as a route map like the United Kingdom to guide them in environmental stewardship. However, some Australian hospitals are attempting to become climate-friendly by adopting agendas from other countries. One such hospital is the Mater Hospital, Queensland which follows the agenda of Health Care Without Harm.

Discourse within the literature indicates how important the obligation to positively contribute to environmental stewardship has become and that environmental stewardship is now gradually becoming an essential part of running a hospital (Australian Nursing and Midwifery Federation (ANMF), 2011a; ANMF, 2011b; Low & Binns, 2011). The governing bodies of hospitals have responsibilities regarding environmental stewardship and patient health, and this is illustrated by the following example related to Polyvinyl Chloride (PVC) (McAuliffe, 2013). Polyvinyl Chloride is an amorphous structure

produced by the polymerization of the vinyl chloride monomer. In their paper Comaniță et al. (2015) undertook a life cycle assessment regarding the environmental impacts of the PVC production process. The results showed that PVC production has negative impacts on the environment, with high contribution to human toxicity potential (HTP), photochemical ozone creation potential (POCP), acidification potential (AP) and global warming potential (GWP) (Comaniță et al., 2015).

According to McAuliffe (2013, p. 12) a significant amount of tubing and oxygen masks and "*over 50 million IV fluid bags*" made of PVC end up as waste material per annum. This equates to "*2,500 tons of material*" much of which ends up in landfill which is detrimental to the environment. Not only are there negative environmental consequences, but PVC is connected to negative patient outcomes.

An example of a negative patient outcome is offered by Steingraber (1997) a cancer activist, who emphasised the risk to patients due to the use of PVC in equipment such as intravenous drips, especially blood transfusion sets. Steingraber (1997) stated that PVC substitutes were required. Despite this assertion almost two decades ago, PVC products remain in great use and are still a topic of discourse. The combination of di-2-ethylhexyl-phthalate (DEHP) with PVC and their interaction with red blood cells continues to be an unsolved challenge.

Despite Lozano and Cid (2013) declaring the above issues as not yet being solved, and stating that "*clear-cut human toxicity has not been identified*," they do advocate for the use of a precautionary attitude when utilising such

intravenous equipment (Lozano & Cid, 2013, p. 129). Given the amount of these products in use, Burger and Newman (2009, p. 7) remind us that environmental stewardship within hospitals needs to be an ongoing practice.

A scoping study by Burger and Newman (2009, p. 7) was conducted at the Collaborative Research Centre in Perth, Western Australia. The result was a report titled 'Hospitals and Sustainability,' within which, six themes were addressed: *"energy, waste, water, transport, digital management and human dimensions."* Table 15 summarises Burger and Newman's (2009) findings regarding some Australian hospitals' environmental sustainability practices. The concluding remarks reiterate how hospital services are important players in environmental sustainability and that the reason for this major role is because of the human dimensions of any hospital (Burger & Newman, 2009).

Table 15
Hospitals and Sustainability

Element	Hospital	Practice
Energy.	Royal Perth Hospital, Western Australia.	Reduction of energy by addressing circuit power reducers and lighting.
	Royal Women's Hospital, Melbourne, Victoria.	Use of displacement air-conditioning in patient wards.
	Redcliffe, Toowoomba, and Townsville Hospitals, Queensland.	Use of gas-fired electrical and/or co-generation plants.
	Geelong Hospital, Victoria.	
	Griffith Hospital, New South Wales.	
	Flinders Medical Centre, South Australia.	Solar hot water system.
	Repatriation General Hospital, South Australia.	Solar hot water system and natural gas burners.

Element	Hospital	Practice
	Ipswich Hospital, Queensland.	Air conditioning system is supported by a 300 k W _r double-effect absorption chiller.
Waste.	Flinder's Medical Centre, South Australia.	Has a healthy environment project.
Water.	Ipswich Hospital, Queensland. Geelong Hospital, Victoria.	Rain harvesting system. Reject Water (RW) from hemodialysis services has been collected and utilised for grey water use even though this water is classified as drinkable.
Transport.	Queen Elizabeth (QEII), Perth, WA.	Travel smart plan, encouraging cycling and eco-driving training.

Adapted from Burger and Newman (2009)

Australian hospitals wishing to enact climate-friendly initiatives have been previously noted in this chapter as joining organisations such as Health Care Without Harm. The Australian partners to HCWH are the Climate and Health Alliance (CAHA), and the Australian Hospitals and Healthcare Association (AHHA). These two non-profit organisations promote environmental and public health by supporting Australian hospitals in their quest to reduce their environmental footprints by adhering to the ten step agenda discussed earlier in this chapter (Global Green and Healthy Hospitals (GGHH), 2014).

Although there are no mandatory reporting requirements for the emissions of an Australian climate-friendly hospital, those that have joined HCWH's new on-line multi-lingual global community called Global Green and Healthy Hospitals Connect are requested to try and volunteer at least two reporting results from their environmentally sustainable actions per annum. The new on-line global platform provides free information and free statistics to their on-line community members of how hospitals are progressing in environmental sustainability as

they make the transition to a climate-friendly hospital (Health Care Without Harm (HCWH, 2015).

In regard to emissions activity reporting, Australian industries (hospitals included) do have the National Pollutant Inventory (NPI) which is incorporated under the umbrella of the Australian Government Department of the Environment and Energy (AGDoEE) (2015). The NPI provides information for managers on how to estimate their emissions so that they can undertake due diligence and report annually. However, in saying this, facilities are not expected to supply their emissions status until a handbook consisting of various manuals are approved and published for a particular sector (Australian Government Department of the Environment and Energy (AGDoEE), 2014). Under the NPI guide, Australian hospitals come under the Australian and New Zealand Standard Industrial Classification (ANZSIC) code Q, 'Health Care and Social Assistance,' code number 840 (Australian Government Department of the Environment and Energy (AGDoEE), 2013), Appendix A.

With regard to reporting on various environmentally sustainable measures, Australia is somewhat in a state of flux with inconsistencies noted between the six states and two territories (Macintosh & Wilkinson, 2012). One reason as to why reporting on sustainability is difficult is because of transboundary issues: *"when do the economic, social and environmental stocks and flows of one organisation or area stop and those of other organisations and areas begin?"* (Macintosh & Wilkinson, 2012, p. 31).

An example of a transboundary issue is when health services purchase medical devices yet the supplier of such devices does not pack them using an

environmentally friendly process. This then, could result in unwanted packaging (often in large quantities) being sent to the local landfill (costing money) instead of being able to take the action of a climate-friendly hospital, which would be to recycle it. Becoming a climate-friendly hospital is often more complex than it appears, but it is the health professionals who have been noted by WHO and HCWH (2009) to be agents of change in these climate- friendly processes.

To promote environmental sustainability many nurses are working toward becoming more involved in driving environmentally sustainable practices. Such actions include energy conservation (Harris et al., 2009). Given the role that nurses play in hospitals and also considering that this research examined nursing practice, Section Two of this chapter commences with a brief historical introduction of how the sick and injured were cared for by untrained individuals. The discussion progresses on to demonstrate how these untrained individuals became recognised as the respected and highly educated professionals they are today, professionals who have moved from subservient roles to independent practitioners who are agents of change.

Section Two

A brief historical introduction of health care

Various approaches to the delivery of healthcare have taken place since before documentary records were discovered. Often care would be provided by members of the family, usually female members, or female servants that were employed by families (Madsen, 2005). Skills to take care of those who were ill or injured accrued over time and usually were passed down over the generations (Madsen, 2005). Over the years and as noted in Section One, healthcare is now largely delivered in institutions such as hospitals, although primary healthcare is once again acknowledged as an appropriate setting for healthcare delivery.

One such 'old' hospital can be seen in the origin of the 'Order of Saint Lazarus' which was founded by Saint Basil in a leper hospital in Jerusalem 4th Century AD. The hospital was later dedicated to Saint Lazarus during the late 11th Century for the care of pilgrims who had contracted leprosy (St. Lazarus.org., 2014). As health care of individuals has evolved, so too has a significant transformation in health care practice taken place. This is discussed further through a more contemporary lens.

Recognition as a professional

Part of being recognised as a health professional means that appropriate regulation via registration is required. Registration is managed and monitored in Australia through a national regulatory authority known as the Australian Health Practitioner Regulation Agency (AHPRA) (2015). In Australia, nurses are expected to meet certain competences in order to register with the Nursing

and Midwifery Board of Australia (NMBA) before they can practice (NMBA, 2016).

Responsibilities and roles of the Registered Nurse (RN)

The various tasks performed by a RN are elucidated as part of nursing practice.

Nursing practice can be described as:

Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles. (International Council of Nurses (ICN), 2014, p. 1)

There are a number of categories of nurses. Examples include Assistants in Nursing, ENs and RNs. Fedoruk and Hofmeyer (2012, pp. 21-22) assert that *"registered nurses have different responsibilities from other nurses bearing different categories."* Apart from complex clinical decision making amongst numerous RN responsibilities, one of the most important roles that a RN performs is that of leadership. Given that nurses are *"the largest group of health care workers"* (Muñoz, 2012, p. 472) and that they are often leaders within healthcare settings, nurses such as RNs are the ideal group of health professionals to lead the way in environmental stewardship. Leadership according to Cleary, Horsfall, O'Hara-Aarons, and Hunt (2012) is an important area of clinical practice.

Muñoz (2012) contends that the possible key to mitigating the carbon footprint of healthcare organisations may lie at the bedside, where the commencement of environmental hazards takes place. For example, the process of changing wound dressings can be conducted in an environmentally conscious way, whereby some of the materials and instruments used do not necessarily end up in landfill and can be recycled, thereby decreasing the contribution to global climate change. Muñoz (2012) poses the question: *"who is performing the procedures that use energy, water, and sterile processing and produce biohazardous waste?"* The answer she contends is nurses, as they are *"at the frontline of health care"* (Muñoz, 2012, p. 472). This again suggests nurses to be agents of change and can be the leaders of sustainability practices within hospitals.

As the largest component of the health professional workforce, nurses can contribute to changes in healthcare practices by following guidelines such as those published by the WHO and HCWH (2009). Examples of what nurses can do to reduce the climate footprint can be seen in Table 16 below 'opportunities for action' (WHO & HCWH, 2009, pp. 23-24).

Table 16
Opportunities for action

Hospitals and health systems	Health professionals
Educate hospital staff about climate-change issues. For teaching institutions, make environmental health, climate change mitigation and adaptation efforts part of the required curriculum.	Encourage the health facilities where you work to lead by example and adopt measures to reduce their climate footprint.
Review facility procurement practices, and patronize local vendors who carry sustainable products and follow sustainable practices whenever possible.	Encourage professional associations to explore and address the issue of climate change and the role of the health sector can play in mitigation.
Audit, measure, monitor and reduce hospitals' and health systems' climate footprint.	Work with associations of health professionals and teaching institutions to make climate literacy a mandatory requirement for all clinical education programs.
Identify potential co-benefits of climate mitigation efforts.	Become an informed advocate for climate mitigation and adaptation efforts.
Educate accreditation bodies about the intersection between environmental sustainability, human health and health care standards. Identify ways that sustainability practices can be incorporated into accreditation standards.	Set an example: do your part to understand and minimise your own climate footprint.

(WHO & HCWH, 2009, pp. 23-24)

As alluded to previously, within hospitals, nurses assume leadership roles (Shulman, 2015) and indeed many healthcare organisations depend on nurses to be the agents of change (Grealish, Henderson, Quero, Phillips, & Surawski, 2015), and also to be able to adapt to changes in practice (Gower, 2013; Riedel, 2011; Roberts & Stott, 2010; Sayre, Rhazi, Carpenter, & Hughes, 2010; Skov, 2009). Such changes are occurring within climate-friendly hospitals with Kreitzer (2009) identifying ways in which nurse leaders can advance climate-friendly initiatives, strategies include: becoming a leader of a green team, or participating in such a team that has already been set up, addressing

procurement management to provide safer products for the hospital, and by reducing energy use. Other ways in which nurses can contribute to environmental sustainability are identified in Table 17.

Table 17
Components and connections to sustainability

Components of a change agent	Connection to sustainability
Transformational Leadership.	<ul style="list-style-type: none"> • The emergence of Nurse Environmental Health (EH) advocates. • All organisational activities are driven by an environmental philosophy. • LEAN and GREEN programs are implemented.
Structural Empowerment.	<ul style="list-style-type: none"> • Nurses are challenged and supported to be EH change agents. • Environmental Health is adopted effectively into organisational processes by nurses. • Strong Partnerships are strengthened resulting in improved community health.
Exemplary Professional Practice.	<ul style="list-style-type: none"> • Nurses participate on Green Teams. • Nurses educate the value of EH and sustainability in health care. • Environmental Health principles are incorporated into models of health care.
New Knowledge, Innovations, and Empowerment.	<ul style="list-style-type: none"> • Environmental Health is included in the structures and processes for quality management. • The environment is improved through the redesign and refinement of systems and practices. • There is a probable reduction in respiratory and other occupational related conditions amongst nurses.
Empirical Quality Outcomes.	<ul style="list-style-type: none"> • Patients in green hospitals heal faster. • There is a philosophy amongst nurses that a better outcome for patients is derived through healthier environments. • Safer working environments.

Adapted from Practice Greenhealth (2011)

In the era of change and challenge, Chambers and Ryder (2011) emphasise that leadership and leaders are required, but creating change however may not be as simple as depending on leaders alone. Wright (2010) describes how the

enthusiasm for change by one person may not be shared amongst everyone. The author describes how his enthusiasm was met with varying responses from *"instant engagement to downright hostility,"* pointing out that skills required to manage change remain a challenge in nursing but can be overcome (Wright, 2010, p. 20).

Nursing practice within a climate-friendly hospital is likely to represent a change. That said, some nurses within Australia are adapting to environmentally sustainable changes in practice that have been introduced by their regional health services, such an example is noted at the KooWeeRup Bush Hospital, Victoria (Kooweerup Regional Health Service (KRHS), 2010). A core component of this health service with respect to environmental sustainability is to invite all new staff inclusive of nurses to commit to sustainable actions by signing the service's 'Environmental Pledge' (see Appendix B).

The Pledge encourages staff to address key elements such as energy, water, transport and waste. In exchange for their commitment, participants of the Environmental Pledge are provided with a free re-usable hot drink cup and a discount from the visiting coffee vendor when the cup is presented.

Environmental sustainable workshops are also provided throughout the year with a focus on climate change and various other environmental sustainability topics such as: water capture, preserving eco-systems and variations in composting (Thoms, 2017). The author also asserts that environmental workshops will enable staff to build on their skills and knowledge (Thoms, 2017).

At a professional level, the New South Wales Nurses and Midwives' Association (NSWNMA) (2015) is cognisant of environmental responsibilities and is affiliated with the Climate and Health Alliance, and the Global Green and Healthy Hospitals Network, both mentioned earlier in this chapter (NSWNMA, 2015). To this end, the NSWNMA hosted two environmental health seminars whereby nurses present to their peers their experiences of working in hospitals that implement sustainable actions.

This is an example of raising awareness by disseminating information regarding change in action about environmental sustainability and hospitals. In order to maintain the momentum of more hospitals becoming climate-friendly and entrench sustainable actions into nursing roles, nurses must continue to act as agents of change and change can be assured via policies and procedures. Environmental health has been incorporated into policies for some time. Examples of these are now offered.

Organisational policies and procedures

As climate-friendly hospitals are attempting to promote environmental stewardship so policies and procedures to guide such actions are emerging. The International Council of Nurses (ICN) in 2006 published a Code of Ethics for nurses containing four elements. Under element 1 'Nurses and people' the ICN stated that: *"the nurse also shares responsibility to sustain and protect the natural environment from depletion, pollution, degradation and destruction"* (International Council of Nurses (ICN), 2006, p. 1). The 2012 revised Code of Ethics still has four elements however the environmental component has since been placed under element 3 'Nurses and the profession' which now states that

"The nurse practices to sustain and protect the natural environment and is aware of its consequences to health" (International Council of Nurses (ICN), 2012, p. 4).

In September 1994, the Australian Nursing and Midwifery Federation (ANMF) (2011a) endorsed a policy on health and the environment. This policy was reviewed and re-endorsed in May 2005, November 2008, and November 2011 and again more recently, only this time under the auspices of the Australian Nursing and Midwifery Federation in May 2015 (Australian Nursing and Midwifery Federation (ANMF), 2015a). With regard to the health and environmental policy which is made up of twelve statements the ANMF highlights in statement 11 that *"Nurses, midwives and assistants in nursing, have the right to participate in the formulation and implementation of action plans to establish environmentally sustainable production techniques and practices in the workplace"* (ANMF, 2015a, p.2).

In November 2011 the ANMF also developed a policy that addressed climate change; the policy was reviewed and re-endorsed in May 2015 (ANMF, 2011b; Australian Nursing and Midwifery Federation (ANMF), 2015b). Six statements make up the climate change policy, statement 5 recommends that education surrounding climate change and health should be incorporated into the undergraduate and post graduate nursing and midwifery curricula. In particular, statement 6.8 states that employers should *"endorse the principles of the World Health Organisation's [sic] 7 Elements of a climate-friendly hospital"* (ANMF, 2015b, p.2). These position statements are what the ANMF believe should be occurring in all hospitals.

Despite the rhetoric the majority of Australian health professionals do not fully appreciate the necessity of implementing environmentally sustainable actions into their midwifery and nursing practices. The scoping undertaken for this research, which is presented in Section Two of Chapter Three - Research Design Chapter, shows that hospitals within Australia, have not yet fully embraced a climate-friendly concept.

Summary

The move toward becoming a climate-friendly hospital appears to be slowly on the increase in Australia but is yet to be fully embraced. Some hospitals are making their transformation into environmentally sustainable organisations, and working toward lessening their impact on both humans and the environment. As these types of organisations are finding their way, the nurses that work within climate-friendly hospitals are also trying to adapt to practices that are correlated to climate-friendly initiatives. However, because of its infancy, information about climate-friendly hospitals is sparse and is difficult to ascertain. Even more scant, is information on what it means for RNs to practice within a climate-friendly hospital.

This chapter has provided the background and context for the study. It sets the scene for the reader in terms of understanding the seven key elements with regard to identifying a climate-friendly hospital and also explicates the challenges in implementing the elements. Additionally, the chapter describes the role that nurses play in environmentally sustainable practices within hospitals and how they are agents of change. Consequently the chapter has

made an original contribution to knowledge by exploring the relationship between environmental stewardship, climate-friendly hospitals and nurses.

The next chapter contains two sections. The first section discusses the chosen methodology, Heideggerian (hermeneutic) phenomenology. Section two presents the methods inclusive of rigour, trustworthiness, credibility and transferability of the study. Section two also discusses phase one which has informed phase two - developing an understanding of the phenomenon in question.

CHAPTER THREE

RESEARCH DESIGN

Introduction

In order to answer the research question, "what does it mean for a RN to work in a climate friendly hospital?" a methodology that is rich in the understanding of *"being-in-the-world"* and one that is cognisant of *"entities (things) within the world"* (Heidegger, 1973, p. 71) is required. As such, phenomenology, which is *"a strategy of inquiry in which the researcher identifies the essences of human experience about a phenomenon as described by the participants"* (Creswell, 2009, p. 33) was considered appropriate and subsequently chosen.

The chapter, Chapter Three - Research Design is presented in two sections. Section one describes the role of the researcher, the researcher's ontological and epistemological position in regard to the study, hermeneutic phenomenology and its rising popularity in nursing research, historical underpinnings of phenomenology and the researcher's decision for choosing such a philosophical methodology.

Section two of this chapter includes a compressive description of all aspects of the methods used to undertake the research in order to understand and critically inquire about the phenomenon of this study. The discussion in this section is inclusive of ethical considerations, participant recruitment, and in addition includes a complete description of data collection and analysis. Section two also incorporates phase one of the overall study. That is, a comprehensive discussion is offered on identifying climate-friendly hospitals in Australia. This section describes how the twenty-seven hospitals that were

identified were eventually included in the recruitment phase of the study. Phase one (identifying climate-friendly hospitals) was crucial to undertake in order to inform the second phase which was to develop an understanding of what it means for a RN to work in a climate-friendly hospital. Phase two includes in-depth semi structured interviews with RNs who work in climate-friendly hospitals.

Section One

Methodology

Research aim

The aim of this research was to develop an understanding of what it means for a RN to work in a climate-friendly hospital.

Research questions

As per Chapter One - Research Synopsis, the research was underpinned by two research questions which are:

a) "To what extent have hospitals become climate-friendly within Australia?"

and

b) "What does it mean for a RN to work in a climate-friendly hospital?"

The role of the researcher

Many qualitative researchers work within settings that are conducive to interpreting both their own and other's social interactions. Within these settings they remain reflective so as to maintain awareness of how what they study is shaped by their own lifeworld and social identities (Marshall & Rossman, 2011).

In this approach the role of the researcher is valued as much as that of the

participant as the researcher's prior knowledge is thought to bring awareness and an ability to raise ontological questions (McConnell-Henry, Chapman, & Francis, 2009b).

The position outlined above derive from a corporal (body/spiritual; being-in-the - world) stance of a shared world, an everyday world that is meaningful to both the researcher and the participant due to their 'shared' precognitive backgrounds and positions (Chang & Horrocks, 2008). It is therefore the researcher's relational recognition and awareness of 'being-in-the-world' (corporal) that becomes purposefully employed in order for the inquiry into the experiential essences to become meaningful (Lopez & Willis, 2004; Shionoya, 2010). Denzin and Lincoln (2011) also purport research to be interpretive, with researchers being guided by a set of beliefs, principles or paradigms recognised as; ontology, epistemology and methodology.

Ontology and epistemology

This research aimed to develop an understanding of 'what it means for a RN to work in a climate-friendly hospital.' In order to achieve the aim and explore the research question, understanding the nature of existence and who we are within it is important. The word "*Ontology*" derives from the Greek word "*being*" (Stewart, Blocker & Petrik, 2010, p. 289) and is the philosophical study of the nature of being, becoming, or existence of reality, as it is known (Walker, 2011). Epistemology is also from the Greek; *Epistêmê*, meaning knowledge (Karpov, 2015) and logos meaning logical discourse and experience (Gangadean, 2002). It is the branch of philosophy concerned with the theory of knowledge.

Interpretive social science researchers are guided by social practices of everyday life to find the truth, understanding and the meanings of existential experiences (Krumwiede & Krumwiede, 2012) of being-in-the-world. Applying this to nursing practice it also incorporates knowledge of how to do certain practical skills. Ontologically, I, as a person and as a researcher, exist in a world with other entities. My own lifeworld has therefore been shaped by the world in which I live. My lifeworld has therefore not merely taken on a "*natural taken-for-granted*" approach known as a "*life philosophy of existentialism*" but has evolved through the experiences of many events whereby the "*phenomena present themselves in lived experience, in human existence*" (van Manen, 1990, p. 184). Being-in-the-world is therefore relational with regard to how a being is able to relate to other beings and non-human entities (Johnson, 2000). Due to the very notion of me being-in-the-world I am unable to think of myself as leading a life inseparable from the world in which I exist (Lopez & Willis, 2004), and that includes the world of research.

Epistemologically, the knowledge I have gained as a result of many influences (formal and informal) has guided me throughout my life, facilitating me to choose a career pathway in nursing and has shaped how I act within my various lifeworlds such as my home lifeworld and work lifeworld (Denzin & Lincoln, 2011). If I apply this to this research, the knowledge gained in regards to climate-friendly hospitals has been learnt as a result of many influences e.g. anecdotal information and conversation and also as a result of formal study. Healthcare services are publishing their climate-friendly mitigation strategies through organisational membership newsletters, such as those subscribing to the membership of the 'Global Green and Healthy Hospitals' agenda. I was, at

first, sceptical about anecdotal information and the truth which lies within. Truth, though, is considered to be what the person actually sees and experiences (McConnell-Henry et al., 2011) and an anecdote is considered as the “*what*” and “*how*” in a “*pre-reflective retold story from a lived experience*” (Eilifsen, 2011, p. 7). Given this, my comfort levels regarding the acquisition and use of anecdotal information rose. I remain circumspect in using this knowledge, but it is knowledge nevertheless. It is also worth noting that phenomenological research is known to employ anecdotes as a part of a methodological tool (Eilifsen, 2011).

Formal studies enabled me to extend my knowledge-base with a completion of a post graduate degree in environmental change management. Both the environment and health and their interconnected nature are areas that continue to be of interest to me. These interests have sparked a deep sense of inquiry and have influenced my decision to study climate-friendly hospitals and the practices of contemporary nursing within these institutions.

Other ways of knowing have grown through participating in committee meetings such as an ecology and environmental special interest group (EESIG) (which incorporates both environmental and health issues), a primary health care special interest group (PHCSIG) and by gathering and sharing knowledge with others by attending and speaking at conferences. Sharing of knowledge also takes place globally and I am on a panel of experts that shares information with other healthcare professionals on leadership skills through a new innovative on-line platform. Through the sharing of knowledge healthcare organisations can learn how to operate their businesses in an environmentally sustainable way.

Apart from the knowledge acquisition outlined regarding 'who I am' and 'how I have come to know' I have no actual experience of working as a RN in a climate-friendly hospital. In the past I have witnessed solar panels being erected on-site at a hospital in which I worked, but that is the extent of my experience. This knowledge deficit increased my curiosity to examine the meaning of the phenomenon that is the central tenet of this investigation.

Nursing and phenomenology

Nursing throughout the centuries has sought to use various methodologies and methods to conduct research from other disciplines which include experimental designs and social surveys to conduct scientific research (Cohen, Kahn, & Steeves, 2000). As research is dynamic in nature, methodological dynamism over the years, especially since the 1970s, has seen an increase in what are considered more participant inclusive approaches. These include many of the qualitative methodologies of which there are a number. Examples include ethnography, action research, case study and grounded theory (Cassidy, 2006; Charalambous, Papadopoulos, & Beadsmoore, 2008; Doumit & Abu-Saad, 2008; Lopez & Willis, 2004). A popular methodology with nurse researchers is phenomenology. Moxham and Patterson (2017) explain why, with so many methodologies and so much choice, phenomenology is becoming so popular in nursing research in their commentary in *Nurse Researcher*. Picton, Moxham, and Patterson (2017) also describe its use and particular appropriateness and alignment within mental health nursing. Table 18 also provides specific examples of how this methodology has been used in nursing research.

Table 18
Nursing Research using Phenomenology

Study	Author/s
Student midwives' perceptions of real-time simulation: A qualitative phenomenological study.	Deegan and Terry (2013).
What keeps nurses nursing?	Dunn (2012).
Lived experiences of eating after oesophagectomy: A phenomenological study.	Jaromahum and Fowler (2010).
A phenomenological examination of the meaning of resilience as described people who experience schizophrenia.	Liersch-Sumskis (2013). (PhD thesis).
Experiences of a Taiwanese nurse in the United States.	Liou and Cheng (2011).
NICU nurses' lived experience: Caring for infants with neonatal abstinence syndrome.	Maguire, Webb, Passmore, and Cline (2012).
Buddhist thought and nursing: A hermeneutic exploration.	McCaffrey, Raffin-Bouchal, and Moules (2012).
Nurse leader mentor as a mode of being: Findings from an Australian hermeneutic phenomenological study.	McCloughen, O'Brien, and Jackson (2011).
Critical care nursing students' experience of clinical accompaniment in open distance learning (ODL): A phenomenological perspective.	Moleki (2008). (PhD thesis).
Investigating patients' experiences: Methodological usefulness of interpretive interactionism.	Tower, Rowe, and Wallis (2012).
A hermeneutic phenomenological study of women's experiences of post-natal depression and health professional intervention.	Williamson (2005). (PhD thesis).

Understanding phenomenology

Phenomenology was first noted as being a sub discipline of theology and was used to interpret scriptural text (Howard, 1982). The concept of text, according to Neuman (2006) within phenomenology also refers to discussion, written language or pictures. Hermeneutics which is the theory and methodology of interpretation, when combined with phenomenology, enables the nurse researcher to explore the experiences of their participants and the meaning they ascribe to a phenomenon (Rapport & Wainwright, 2006). The research described in this thesis is driven by the hermeneutic phenomenological approach. It enabled the researcher to explore with the RN participant the phenomenon of interest and interpret what it is they experience in their daily nursing activities. It enables a lived experience account.

Phenomenology defined

Phenomenology, according to Balls (2009, p. 1) *“supports the re-examination of...experience and, through examining the qualities of the experience, allows us to identify its essence.”* Essence, according to van Manen (1990, p. 177) is *“the true meaning of a thing...that makes a thing what it is...rather than its being or becoming something else.”*

Papineau (2004, p. 31) points out that phenomenology is a *“theory of appearance (phenomenon is the Greek word for appearance).”* Vivilaki and Johnson (2008) contend though, that the word ‘appear’ does not exactly do justice to the meaning of a phenomenon. Polit and Beck (2004, p. 727) describe phenomenology as *“a qualitative research tradition, with roots in philosophy and psychology, that focuses on the lived experience of humans.”*

Denzin and Lincoln (1994) contributed to the interpretation of phenomenology in the latter decade of the twentieth century by stating how humans, through a lived experience within a social context, are able to build and make sense of their actions. McConnell-Henry, Chapman, and Francis (2009a) appear to be in support of Denzin and Lincoln (1994) arguing that phenomenology is a valuable means by which a greater understanding for the researcher is reached through the borrowing of the participant's lived experiences.

Historical account of phenomenology

According to Barkway (2001) phenomenology commenced with philosophical roots in Europe around the twentieth century and is seen as having three phases which include: Preparatory, Germanic and French (Cohen et al., 2000).

Preparatory phase

This phase was dominated by Franz Brentano a philosopher and psychologist (1838-1917). Phenomenology was informed by Brentano's views whose interests were mainly in *"intentionality as an empirical phenomenon"* (Papineau, 2004, p. 31). Brentano was committed to a scientific approach (Harwood, 2010) that was influenced by the disciplined scientific philosophy of Hume. Humean empiricism was called *"the experimental Method of Reasoning"* which was justified by the use of a hypothesis (Jacquette, 2011, p. 17). Brentano is said to have influenced other luminaries and is acknowledged to have been Edmund Husserl's teacher at the University of Vienna (Papineau, 2004).

Germanic phase

The Germanic phase was dominated by Edmund Husserl (1859-1938) and his student/work colleague Martin Heidegger (1889-1976). Husserl is the

acknowledged founding father of phenomenology who believed problems could be solved philosophically through the description of consciousness (Johnson, 2000). Husserl's phenomenology describes and analyses subjective mental experiences known as acts of consciousness. For Husserl phenomenology was an apt scientifically trustworthy process that could facilitate the study of consciousness without reducing the objective and shareable meanings that inhabit experience. Ideal meaning would be the engine of intentionality in acts of consciousness (Smith, 2011).

Husserl purported consciousness to be separable from human existence through a process he described as 'bracketing.' Martin Heidegger studied Husserl's early writings, worked as an assistant to Husserl, and later succeeded Husserl to the prestigious chair of philosophy at the University of Freiberg, Germany (Carmen, 2008). Heidegger initially believed in the phenomenological approach of Husserl often expanding on his teacher's philosophies but subsequently developed his own ideas about phenomenology (Smith, 2011). The greatest difference between the two men was that Heidegger believed that the mind (consciousness) was inseparable from human existence (Dowling, 2004).

Heidegger asserted that by a person having a history, human relationships are helped as each person can relate to the other. He also believed that as humans we make our own choices in life that shape our own future; Heidegger called these aspects being-in-the-world, a phrase for which he became famous (Walton & Madjar, 1999). Husserl though, felt that it was possible to bracket out ones experience. Another philosopher who shared Heidegger's views is that of

his student Hans-Georg Gadamer (1900-2002) who described all human beings as an essential part of language (Harwood, 2010).

Gadamer saw himself purely as a philosopher and in his work titled 'Truth and Method' (Wahrheit und Methode 1989) he expressed his disinterest of producing any form of methodology for the human sciences (Walsh, 1996).

Gadamer saw interpretation as being dialectical commencing with our own "*horizons of understanding*" namely our prejudices or fore-thoughts and during the process of interpretation the horizon of the "*other*" person fuses with our own, thus resulting in an understanding (Jahnke, 2012, p. 33). This, according to Gadamer, is the "*fusing of horizons*" (Jahnke, 2012, p. 33).

The fusion of horizons according to Walsh (1996) is a process of continuum which means that during discourse the dialogue takes into consideration not only participant experiences but also those of the researcher, and constantly tests for prejudices (pre-conceptions). Thus, pre-conceptions are acknowledged. Both researcher and participant construct an understanding of what is being said thereby extending and adding depth to their knowledge. In other words, and metaphorically applied to this research, when the horizons (or range of vision) from the researcher (me) interconnects with that of the individual participant an understanding is reached and a fusion of horizons exists, Figure 6.



Figure 6. Understanding: From awful to awesome conversations (McGirr, 2012, p. 1)

This movement between textual detail, meaning and understanding is circular in process and has become acknowledged as a hermeneutic circle. This can be seen in Figure 7 (Converse, 2012).

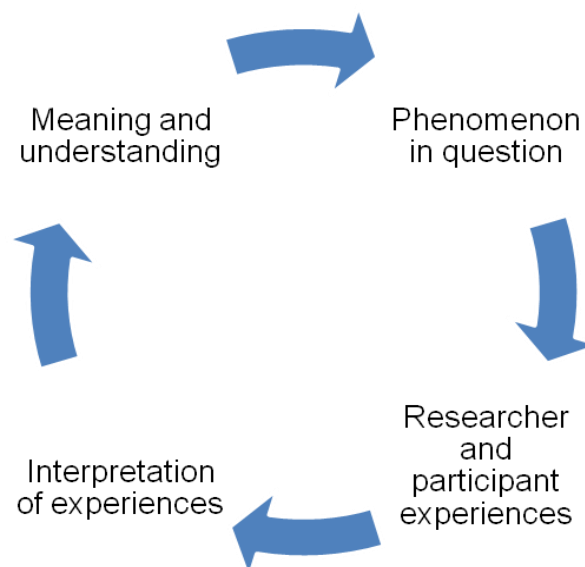


Figure 7. Hermeneutic circle, adapted from Converse (2012)

Using hermeneutic enquiry as an approach to interpret text, elucidates and reveals the experiences of entities. This process of continuous movement in

temporality within the world keeps the phenomenological question in focus and allows for any misinterpretation or confusion to be filtered out (Debesay, Nåden, & Slettebø, 2008). As this process draws on the same philosophical approach as Heidegger, that is, recognition of the role of the researcher, it has been applied to this study. Phenomenology has been influenced by many ideas (Jones, 2001).

French phase

In the 1930s phenomenology migrated from Austrian and then German philosophy into French philosophy and according to Cohen et al. (2000) the French phase was dominated by Gabriel Marcel (1889 -1973), Jean-Paul Sartre (1905 -1980) and Maurice Merleau-Ponty (1908 – 1961). Marcel's interest was in existentialism. One of the key foundations of existentialism are the ideas of subjectivity and freedom. However, Marcel was not considered a philosopher and as such, his work was identified as being that of a dramatist and novelist (Papineau, 2004). Sartre's first phase was influenced by his personal experiences in the French resistance and was classified as his morbid period. Like Husserl, Sartre's thoughts developed through three phases.

Sartre's thoughts are said to have changed to a scholarly advancement through a lack of scepticism which became known as his second phase. Sartre's third phase combined Edmund Husserl's phenomenology together with that of Martin Heidegger's ontology as well as with aspects of Marxism. It is widely believed that these three developments in Sartre's life enabled him to put forward his idea of psychoanalytic existentialism (Jones, 2001). Sartre believed that human existence and freedom of choice develops from human despair and

anguish respectively. The richness of his work gained him the Nobel Prize for Literature in 1964, an award which he refused, feeling that it would compromise the principles of his writing (Jones, 2001). Another existentialist from the French era was that of Merleau-Ponty.

Maurice Merleau-Ponty (1908 -1961) was also considered a philosopher whose work was centred on the interdependency dialogue of subject-object and phenomenological perception (Harwood, 2010). Merleau-Ponty's work, like Heidegger's, could sometimes be elusive especially when he wrote in poetic prose. van Manen (1990) describes this as linguistic writing which can be viewed as a holistic, powerful and universal way of understanding a phenomenological inquiry.

As previously mentioned, in phenomenology the researcher is an important component of the research process and possesses ways of knowing (epistemology) about how *"it is that I come to know"* (Dombro, 2007, p. 106). As a result, researchers take a particular stance on how something should be studied, or the particular inquiry process to be adopted (Guba & Lincoln, 2005). A researcher's ontology, epistemology and stance (axiological position) makes up their philosophical paradigm which shapes how they see and act in the world and form a *"basic set of beliefs that guides action"* (Guba, 1990, p. 17).

The philosophical underpinning for this study comes from the Germanic phase and acknowledges the phenomenological philosophies of Husserl, Heidegger and Gadamer. This research lies within the interpretive approach of Heidegger's hermeneutic phenomenology. I, similar to Heidegger, consider that the researcher's axiological position inherently has pre-conceptions or

forethoughts, and I demonstrated this by discussing the acquisition of the knowledge(s) I possess related to environmental sustainability and health and nursing (although, not in a climate friendly hospital). I also believe that the world and its entities (humans) are inseparable. As such, the particular philosophical position of this researcher is Heideggerian.

Hermeneutic phenomenology

Heidegger's hermeneutic phenomenology is an expansion but deviation of his studies on phenomenology under Husserl. Hermeneutic or '*Hermeneia*' comes from the Greek word meaning inner interpretation (Vivilaki & Johnson, 2008, p. 87). Palmer (1969) notes that Hermeneia can be associated with the winged-messenger God Hermes who was able to interpret unintelligible works and make them comprehensible through language and writing. Heidegger posited that for understanding to occur all humans need forethought (McConnell-Henry et al., 2009a, p. 8) as it augments interpretation.

Significance of choosing phenomenology as a novice researcher

Even though phenomenology is utilised as a methodology in various areas such as therapy and rehabilitation, nursing science, historical art and linguistics (Dowling, 2004; Finlay, 2009; Neuman, 2006) its complexity can at times serve to confuse due to its many styles and differing schools of thought (Dowling, 2004). Many papers have been published which allude to the complexity of phenomenology (Bradbury-Jones, 2012; Connelly, 2010; Converse, 2012; Dowling & Cooney, 2012).

The discourse surrounding phenomenology was largely driven by the need to progress phenomenological philosophy into a methodology that would then be

recognised as a rigorous scientific approach (Giorgi, 2008). Much has been published demonstrating how nurses have applied this philosophical methodology in social science research (Barkway, 2001; Charalambous et al., 2008; Debesay et al., 2008; Dierckx de Casterle et al., 2011; Draucker, 1999; Jasper, 1994; Pratt, 2012; Rapport & Wainwright, 2006; Standing, 2009; Van der Zalm & Bergum, 2000). Cohen et al. (2000) affirm that phenomenological research plays a significant role when investigating a new area. The study of climate-friendly hospitals is in its infancy (Lewis, Moxham, Broadbent, 2012c) to the extent that research within this area including the implications for nursing practice is extremely scant. Therefore, and as Cohen et al. (2000) suggests, a phenomenological approach is well positioned to guide this study as a new topic of interest within nursing research.

Choosing a methodology such as hermeneutic phenomenology that valued both my experiences and those of the participants was also important to me as a researcher. As it has not been my intention that findings of the research should contribute to the development of a model, or to provide a description of a theory (Balls, 2009), I chose this methodology to journey into the lived experiences of RNs and as alluded to in the previous discussion regarding axiological positions, the approach also sits well with my experiences as a RN/RM. My philosophy of being-in-the-world as being inseparable to my pre-conceptions including what has already been discussed also influenced my decision for choosing Heidegger's hermeneutic phenomenology.

As indicated at the beginning of the chapter the next section includes a comprehensive discussion of all aspects related to methods, inclusive of ethical

considerations and participant recruitment. The discussion includes a detailed description of data collection and analysis.

Section Two

Method

Introduction

This section of the research design chapter describes the methods used to develop an understanding of 'what it means for a RN to work in a climate-friendly hospital.' The section includes a discussion of ethical considerations, the process of participant recruitment, data collection and analysis, as well as an explanation of phase one which consisted of a scoping of climate friendly hospitals in Australia which amounted to twenty-seven (n=27).

Method overview

According to van Manen (1990, p. 30) "*the method of phenomenology is that there is no method.*" This perhaps does not sound overly rigorous but instead of having a predetermined (set) method, researchers who conduct hermeneutic phenomenology use a set of guiding principles. For this research, the specific process of van Manen's six procedural steps guided an exploration into 'what it means for a RN to work in a climate-friendly hospital.' These six steps, as outlined in Table 19, are classed as broad but flexible research activities, which, according to van Manen, can be identified as a method to be used in an interpretive (hermeneutic) phenomenological study (van Manen, 1990).

Table 19
Six methodical steps of van Manen

van Manen's six procedural steps
The nature of the lived experience.
Investigating the lived experience.
Reflecting the essential themes in phenomenology.
Unfolding the phenomenon through the art of writing and re-writing.
Maintaining a strong and oriented phenomenological relationship.
Balancing the parts and the whole of the research context.

Adapted from van Manen (1990)

The nature of the lived experience

This study commenced as a project of myself (the researcher) as I set out to make sense of the phenomenon in question, 'what does it mean for a RN to work in a climate-friendly hospital?' The opening and end points of a phenomenological study can be identified as a circular process of a lived experience whereby the researcher always returns to the point of commencement. I returned to the point of commencement frequently to maintain the awareness of my interest in the experiences of RNs. In other words I 'lived' and 'became' the question until the essential nature was revealed (van Manen, 1990).

In order to conduct this research I needed to explore the meaning of RNs working in a climate-friendly hospital, which in the words of van Manen (1990, p. 42) points to the question of "*What is the nature of the lived experience?*" As the interpretation of experiences is not without pre-conceptions there was no need to bracket out any of my presuppositions, as in hermeneutic phenomenology they are recognised as a valid component to the research (Chang & Horrocks, 2008).

Investigating the lived experience

Whilst conducting phenomenological research the "*emphasis*," according to van Manen (1990, p. 62), always lies with the meaning of lived experience which is all about the "*gathering*" or "*collecting*" of material such as the gathering of the lived experience of RNs. In order to complete this task I remained true to the question itself allowing it to guide me through a natural process of gathering stories. It was a deliberate choice to ask the RN participants questions that were semi-structured in nature so that they could describe what it meant for them to be a RN working in a climate-friendly hospital. This included their clinical experiences and how some of these experiences were changing and why. The whole investigation meant that the 'borrowed' experiences from the RN participants would "*allow us to become more experienced ourselves*" (van Manen, 1990, p. 62).

Reflecting the essential themes in hermeneutic phenomenology

van Manen (1990, p. 77) states that "*the purpose of phenomenological reflection is to try to grasp the essential meaning of something.*" It allows the nature of everyday life to be brought into focus more clearly so that we are able to understand a phenomenon or a lived experience. Adams (2010) provides some clarity for the above statement by saying that, when phenomenological information is collected it is read with the intent of discovering themes that are recognised as being the structure. This both defines and gives meaning to the phenomenon.

As the researcher for this study, I collected experiential information from RN participants through interviews which were audio-taped with consent. When the

transcriptions were finalised, I read and re-read them over and over, often in conjunction with replaying the audio-tape. This immersion into the participant's stories was an important strategy as it allowed me the opportunity to become more and more familiar with each story as it was told (Smith & Osborn, 2008). Even though Smith and Osborne (2008) state that there is no particular necessity to divide and assign meanings to text at this first stage, I nevertheless found myself doing so looking for words, lines and phrases that could be placed into sub-themes which in turn would help me to interpret the meaning of the phenomenon.

Unfolding the phenomenon through the art of writing and re-writing

In phenomenological research the essence is to allow the phenomenon to speak for itself through the use of sensitive language (Adams, 2010).

Occasionally, such language escapes us as we try to explain the ineffable. This occurred from time to time during my learning journey and I have sought inspiration from the words of others such as authors, my supervisors, colleagues and participants. Indeed, the research–writing process requires the acceptable borrowing of words to express what we cannot ourselves say (van Manen, 1990). This may be due to the inability of actually listening, rather than just hearing what is said. Active listening was required.

An active listener hears the exact words spoken by the participant but is also able to capture the mood and affective components without bias (Yin, 1994).

Active listening hears meaning as well as listens to words. Conroy (2003) agrees and says that prior to approaching the written text it is helpful to re-listen

to the audio-recordings and to write a précis of both participant and researcher's words.

When writing phenomenological descriptions Wertz, Nosek, McNeish, and Marlow (2011) note a tension in being able to capture and present findings in a way that has meaning to others, yet is acceptable to meeting scientific standards. The authors go on to state that the researcher needs to provide a richness of text that is alive to the reader yet still be able to balance the texture and structure whilst describing the phenomenon (Wertz et al., 2011). The hidden language of silence is also important and the researcher used it in a tactful way of prompting recollection so that the interviews could advance (van Manen, 1990). My intentions were to balance all of these challenges so that I could make visible to the reader the experiences of the participants as they undertook their nursing practice in a climate-friendly hospital.

Maintaining a strong and oriented phenomenological relationship

During the extraordinarily demanding process of conducting a hermeneutic phenomenological research it is easy to become side tracked and to therefore settle for superficialities and falsities with preconceived opinions and conceptions (van Manen, 1990). It is paramount, therefore, to maintain a strong and oriented approach to the study. According to van Manen (1990) researchers using a phenomenological approach do not separate theory from life, rather, studies using this methodology bring about orientation to the phenomenon and interpretation of text becomes both rich and deep. To be successful in this task I was mindful of how my own personal lifeworld from which I had developed pre-conceived notions and views could affect the

expectations of the participants and affect their response. I maintained consciousness of these thoughts and feelings by maintaining a personal diary that contained my experiences as an RN/RM and by engaging in constant reflection through regular research supervision and peer discussions.

Balancing the parts and the whole of the research

“Qualitative research (qualis means ‘whatness’) asks the ti estin question: What is it? What is this phenomenon in its whatness?” (van Manen, 1990, p. 33). In other words, what is it like to work in a hospital that is climate-friendly? van Manen (1990) posits that there is a danger when engaging in the search for the ‘whatness’ that could trap the researcher in the undergrowth, blocking them from reaching the clearing, the point at which reveals the power of the text. I looked at the whole of the research design to ensure that the parts contributed to the study in total. To put simply, all the parts need to contribute to the whole. They are not discreet entities; all parts are needed to make the picture rather like a jigsaw puzzle.

LeCompte (2000) postulates that thinking of analysis in the same way as a jigsaw puzzle is constructive. Debesay et al. (2008) acknowledge that when looking at a body of work the individual parts of the text should be interpreted as determined by the whole, as the whole is determined by individual aspects as is seen on the next page in Figure 8.



*Figure 8. Individual parts which contribute to the whole jigsaw puzzle
Adapted from Stock Vector, 123RF (2005, p. 1)*

Ethical considerations

All research should consider ethical implications from the beginning as it encompasses various broad aspects which individuals may interpret differently (Resnik, 2015). For example, according to the author, individuals learn ethical norms from their social settings and may be regarded as common sense. However, because of an individual's differing understanding of what may be right or wrong, ethical disputes occasionally occur. The four reasons set out below indicate why ethics should be applied within the context of research:

1. To promote the aims of the research through knowledge, truth and for the avoidance of error;
2. Values such as trust, accountability, fairness and respect which are seen as essential to collaborative work, are promoted;
3. Researchers are accountable to the public; and

4. So that the quality and integrity of the research can be trusted.

(Resnik, 2015)

Ethics in research are not something that are tacked on at the end but are a deeply important consideration from research design conception. Based on the values and principles of ethical conduct set out by the National Health and Medical Research Council, (NHMRC), the Australian Research Council (ARC), and the Australian Vice-Chancellor's Committee (AV-CC) (2015) the relationship between researcher/s and their participant/s have been grounded for the past six decades within four pillars – respect, research merit and integrity, justice and beneficence. These guiding principles have been the foundation of this study.

Respect is central to research and is acknowledged throughout the National Statement on Ethical Conduct in Human Research (NHMRC et al., 2015) hereafter known as The National Statement. However, the National Health and Medical Research Council, the Australian Research Council, and the Australian Vice-Chancellor's Committee commence their statement by first addressing research merit and integrity. The reason behind this is because *“unless proposed research has merit and... integrity, the involvement of human participants... cannot be ethically justified”* (NHMRC et al., 2015, p. 11).

Merit and Integrity

The guiding principle of merit and integrity was upheld in this study by first proceeding to apply for ethical authorisation to conduct the study from the appropriate Human Research Ethics Committee (HREC). The letter of approval can be viewed in Appendix C. A comprehensive examination of literature

provided the guidance for an appropriate research design to be adopted in order to fulfil the aim of the research and to ensure that knowledge gained contributed to the future improvement and well-being of individuals and communities. Environmental settings and individual behaviour were also taken into consideration as these elements had the ability to influence research integrity that could undermine the values of my participants, therefore, compromising the aim of the research (Khanyile et al., 2006; NHMRC et al., 2015; Steneck, 2003). Prior to authorisation I undertook a detailed program of research study (DPORS).

The DPORS consisted of a comprehensive proposal which underwent an external peer review and validation; this moved my position from one of provisional candidature to confirmed candidate after a successful review. Remaining true to the research was ensured through interacting with fellow researchers and by meetings with experienced supervisors. This process may take the study a longer period of time to achieve but never the less encourages researchers to maintain an ethical position (Neuman, 2006) and commitment to the study. Conference papers and abstracts have been subjected to peer review prior to attending and speaking at conferences. Articles for journal publication were also peer reviewed and communicated to the target audience through the process of scholarly dissemination.

Respect

Respect is acknowledged as one of the four pillars of ethical conduct and values the contribution of each participant in research irrespective of cultural standings, beliefs, customs and other central characteristics (NHMRC et al.,

2015). Respect was maintained throughout the study by ensuring that all written information pertaining to the study was understood by all participants and written in culturally appropriate language that was inoffensive and easy to understand. Respect was once again reinforced at commencement of interview whereby participants were asked if there was any part of the information sheet Appendix D that they did not understand or wanted clarifying, consent Appendix E was also reaffirmed at the time. During the interview questions that were unclear to the RN participants were rephrased and explained in a manner that was more easily to understand.

Autonomy, privacy and confidentiality were respected along with the right to freely volunteer as participants without any pressure (Lysaught, 2004; Spence, 2007). As this was a study of the lived experience of RN participants their voices demonstrated by quotations from the interviews are utilised as evidence of experiences. Pseudonyms were assigned to each participant maintaining the respect for anonymity by de-identifying data collected. Interviews were conducted at venues chosen by the participant.

Venues requested by participants to be interviewed were homes of the participants (travel permitting), over the telephone with participant at home and over the telephone with participant at their place of work. At the end of the interview I again demonstrated respect by thanking participants for their valuable contribution. I was sincerely grateful and mindful of the intrinsic value that was brought to the study through their individual experiences and how these experiences could shape the feelings and desires of the participants to be involved in future studies. I also informed each participant that a précis of the

results would be available for them to read once the data had been written up if they wished a copy to be sent to them. All participants ticked the summary box and will be sent a copy.

Beneficence

According to the National Statement (NHMRC et al., 2015, p. 99) beneficence is *“doing good to others: here also includes ‘non-maleficence,’ avoiding doing harm.”* Silverman (2006, p. 333) notes that *“no set of guidelines or principles of good practice can foresee every eventuality.”* Despite the fact that not every distressing situation can be foreseen every effort was made to minimise the risk of distress. A study where no emotionally distressing sequelae were considered probable as questions were not related to areas of personal concern or involved questions about private and potentially distressing experiences. In fact, no negative sequelae occurred during or following the participants time of involvement.

The design of the research was also cognisant of the participant's place of work. Confidentiality of workplace was maintained by not linking any of the participants to the institutions selected for purposeful sampling. As the study involved RN participants who were providing their opinions on the meaning, which could have also meant workplace implications of working in a climate-friendly hospital from their own lived experiences, I was also mindful of disclosure discomfort. If any discomfort was shown in any way the interview would have been ceased, however, this did not occur at any time. According to Shore (2006) beneficence may vary according to cultural differences and as a

result of these differences beneficence is complicated due to an individuals or groups interpretation of the term benefit.

Because of the act of knowledge sharing, the potential benefits to be gained from the participant's contribution was that of heightened awareness of nursing practices within a climate-friendly hospital and the potential benefit for all nurses and community members in the future. Ford and Reutter (1990) agree that an individual's awareness becomes heightened through participation in research. Through the process of interviewing, the heightened awareness of the participants' experiences helps to present a way of perceiving what is actually significant (Conroy, 2003) to both the participant and to the study.

Data storage is also vital to maintaining anonymity and minimising the risk of harm to participants. The collected data was stored on a password protected computer located within a secure office and will be kept for five years. Disposal of data will occur in accordance with university policy which states that the disposal of research data should be planned, deliberate and irreversible (University of Wollongong (UOW), 2016).

Justice

The National Statement (NHMRC et al., 2015, p. 100) defines justice as “*A regard for the human sameness shared by all human beings, expressed in a concern for fairness or equity.*” The same view is shared by Thompson, Melia, and Boyd (2000, p. 19) who state that “*justice, or the demand for universal fairness, stands in a relationship of tension with respect for the rights of individual persons.*”

This study used a purposive sample which means that in order to fulfil the research aim participants were drawn from specific sites that met the inclusion criteria and were those best able to answer the research question (Creswell, 2003). Even though a purposeful sample was necessary, fairness and equity was also upheld to those RNs that did not meet the criteria. When this occurred I first thanked the RNs for their interest in the study and provided them with a full explanation as to why they had not met the criteria of the study.

Murphy and Tyler (2008) describe practical justice as that which involves the treatment received by participants during their experience of research involvement. The authors go on to state that “*relational aspects of experience include: neutrality, lack of bias, honesty, efforts to be fair, politeness and respect for citizens’ rights*” (Murphy & Tyler, 2008, p. 653).

For those RNs that were successful in meeting the criteria, prior to the commencement of data collection I kept a neutral and honest involvement by divulging to the participants my background as a RN/RM with an interest in environmental sustainability. I was truthful with the participants by informing them that I had not had any experience of working in a climate-friendly hospital and was looking forward to the sharing of their stories. This helped to develop a rapport with the participants as we both shared a preconceived knowledge pertaining to health and they knew that I was interested in their lived experience.

I knew that being open and honest with the participants and maintaining an atmosphere that was friendly would help foster a positive outcome for this study. This would hopefully encourage the participants to volunteer in future

research as I am now more aware of how challenging recruiting research participants can be. Just as recruiting participants for the study was challenging so too was the research into finding healthcare services in Australia that were instigating environmentally sustainable elements in order to mitigate their carbon footprints. The following section now describes phase one.

Phase one - scoping of twenty-seven hospitals

Inclusion criteria for participating hospitals

Currently there is no single definition for a climate-friendly hospital. The inclusion criteria therefore utilised the framework of the seven elements identified in earlier chapters by the WHO and HCWH (2009). These seven elements are reproduced here in Table 20 for ease of reading.

Not all hospitals could be expected to be practicing all of the seven elements from the framework, as transition from traditional practices to climate-friendly practices for Australian hospitals were noted to be lacking (Lewis, Moxham, & Broadbent, 2011a). Whilst not ideal, but a matter of pragmatics, it was therefore acceptable for a hospital to be implementing a small number of the seven elements in order to be considered ‘climate friendly.’

Table 20
Seven elements of a climate-friendly hospital

Key element	Driving force
Energy efficiency.	Reduce hospital energy consumption and costs through efficiency and conservation measures.
Green building design.	Build hospitals that are responsive to local climate conditions and optimized for reduced energy and resource demands.
Alternative energy generation.	Produce and/or consume clean, renewable energy onsite to ensure reliable and resilient operation.

Key element	Driving force
Transportation.	Use alternative fuels for hospital fleets; encourage walking and cycling to the facility; promote staff, patient and community use of public transport; site health-care buildings to minimize the need for staff and patient transportation.
Food.	Provide sustainably grown local food for staff and patients.
Waste.	Reduce, re-use, recycle, compost; employ alternatives to waste incineration.
Water.	Conserve water; avoid bottled water when safe alternatives exist.

(WHO & HCWH, 2009, p. 3)

As previously explained in Chapter Two the expression climate-friendly has been found to produce limited information (especially within the context of nursing) and other terms have been used. Despite these various terms hospitals are working towards the same goal. That is, to reduce their carbon footprint in an environmentally sustainable way through green practices (Carpenter & Hoppszallern, 2010) and to protect the health of humans (Butterfield et al., 2014). The implementation of green initiatives in hospitals in order to reduce their carbon footprint has not only progressed globally (Landers, 2012; Rico & Oruezabala, 2012; Switenki & Lee, 2010) but is also practiced in Australia (McGain & Kayak, 2011) albeit at a much slower pace.

The journey in search of an Australian climate-friendly hospital was therefore a challenge due to quantity of hospitals. The Australian Institute of Health and Welfare (AIHW) (2012, p viii) reported that during the years 2010-2011 there existed *"1,340 hospitals made up of: 752 public hospitals and 588 private hospitals."* Irrespective if a hospital was public or private the organisations were

analysed through a rigorous process to facilitate elimination and/or inclusion in the study.

Process of elimination and inclusion of hospitals

A spreadsheet was established containing all hospitals within Australia. The process of elimination and selection enabled identification of climate-friendly as per the inclusion criteria. The task of identifying climate-friendly hospitals that met with the inclusion criteria for the study was not easy and took many months. Progress was delayed due to hospitals being in a slow transitional state (Burmahl & Hoppszallern, 2013). Data and information regarding green implementation was also not easy to find because they were either not made publically available or it was available only by using a variety of terms to find them.

Electronic data bases aided in data and information collection on climate-friendly hospitals and included but were not limited to Academic Search Complete, CINAHL Plus with Full Text, GreenFILE, Health Business Elite, Health Source Nursing/Academic Edition, SocINDEX with Full Text and MEDLINE with Full Text. A hand search was conducted searching for evidence of elements so as to meet the inclusion criteria. This included perusal of hospital magazines and newsletters, health organisations and specific hospital websites, annual reports and a review of publically available internal documents identifying climate-friendly initiatives.

After many months of investigation, twenty-seven hospitals from four states that had environmentally sustainable initiatives were included in the study. Twenty-

seven hospitals would allow sufficient invitations to be sent to prospective RN participants to invite them to contribute to the study.

Twenty-seven climate-friendly hospitals

Table 21 presents the outcome from this scoping exercise. Although each hospital has been assigned a number in the left column this has not been to de-identify the organisation as much of the information has been provided by publically available information. The numbers were presented merely as a guide for the researcher. The column on the right indicates which of the seven elements (criteria) the hospital met. In order to protect the identity of all parties the researcher has been careful not to associate any specific participant to a specific hospital. Additionally, the seven hospitals from which the participants were recruited cannot be specifically identified from the twenty-seven scoped hospitals.

Table 21
Twenty-seven scoped hospitals

Hospital number	Key element/s
1.	Key Element: Waste Example: An 'Environmental Focus Group' was responsible for an annual programme called 'Going Green.' A specific Going Green example was the recycling of a particular sterilisation wrap (kimguard). A successful trial occurred in four operating rooms, and was later extended to include all of the hospitals eight operating rooms (Brown, 2009).
2.	Key Elements: Energy Efficiency and Waste Examples: Two key elements were implemented: energy efficiency and waste. In regards to energy efficiency, the hospital adopted an action plan where all unused appliances during the evening and at weekends were turned off. The hospital's waste management program incorporated the recycling of paper, cardboard, glass, plastic, metal and a sterilisation wrap namely kimguard (Private Hospital, 2009).
3.	Key Element: Waste Example: A waste management program was implemented at this facility. This program addressed clinical and general waste, inclusive of waste that could also be collected for recycling (Queensland Health, 2010).

Hospital number	Key element/s
4.	<p>Key Elements: Waste, Energy Efficiency and Water</p> <p>Example:</p> <p>A waste management program was implemented which specifically related to waste segregation. The hospital was partaking in an eco-efficiency program not only for energy, but also for water conservation practices (KDL Products, 2011; Jutsum, 2007).</p>
5.	<p>Key Elements: Energy efficiency, Water and Waste</p> <p>Example:</p> <p>Three of the seven key elements were being implemented at this hospital. In regards to energy efficiency, the hospital has a co-generation plant to produce electricity. Through the capture and use of excess heat the plant is also able to supply energy for hot water, and steam for sterilisation.</p> <p>The hospital was also implementing waste segregation for recycling. Conservation of water showed that the hospital had been able to save 6,102 kilolitres of water per annum (Burger & Newman, 2009; KDL Products, 2011; McGaw, personal communication, July, 2011).</p>
6.	<p>Key Elements: Waste</p> <p>Example:</p> <p>Waste and recycling initiatives were being implemented at this hospital to the extent that the hospital received an Outstanding Achievement record for their waste management procedures. The hospital was said to have a 91% involvement in the program (Transpacific, 2010; Australian Council on Healthcare Standards (ACHS), 2009).</p>
7.	<p>Key Elements: Waste and Energy Efficiency</p> <p>Example:</p> <p>This hospital was implementing two of the seven elements. A waste recycling program specifically set up for waste segregation, and a program that was initiated to save energy (KDL Products, 2011; McGaw, personal communication, July, 2011).</p>
8.	<p>Key Elements: Energy Efficiency and Water Conservation</p> <p>Example:</p> <p>This hospital was implementing energy efficiency and water conservation strategies. Through their implementation of energy efficiency the hospital is able to conserve approximately 1.5 MW/hour of electricity per month (WHO & HCWH, 2009; Business Environment Network, 2011).</p>
9.	<p>Key Elements: Water and Energy Efficiency</p> <p>Example:</p> <p>A water saving plan have been in progress at this hospital since 2006. The hospital also initiated a 'Going Green Team' that engages and educates staff on the importance of environmental stewardship, and the importance of energy efficiency (Private Hospital, 2009).</p>
10.	<p>Key Elements: Waste</p> <p>Example:</p> <p>Waste management strategies were being implemented at this hospital. These implementations included the introduction of technological advancements and paperless practices which led to waste reduction. These practices were commenced in 2005, and since then it has been noted that nurses have more clinical time to spend with their patients</p>

Hospital number	Key element/s
	(Hughes, 2006).
11.	Key Elements: Energy, Waste, Water and Transport Example: Four elements have been implemented at this hospital which has environmental stewardship at the core of its everyday business. This hospital had an environmental sustainability program that included waste segregation, energy efficiency strategies, water conservation measures and transport considerations (St John of God, Healthcare, 2010a).
12.	Key Elements: Waste Reduction, Energy Efficiency, and Water Conservation Example: Numerous waste reductions and recycling methods were being implemented at this hospital. An energy efficient scheme had been in place since 1998, the hospital also had a handwashing educational program to conserve water (Thomson, 2003).
13.	Key Elements: Water, Energy Efficiency Example: A water management plan had been implemented at this hospital for over 4 years. The hospital was awarded a business accolade for their water conservation practices. This hospital was also implementing energy efficiency (St John of God Healthcare, 2010b).
14.	Key Elements: Waste Example: This hospital was implementing a waste management program that included the process of waste segregation into various receptacles (KDL Products, 2011).
15.	Key Elements: Waste Example: A waste management program was implemented at this hospital. The program includes such practices as waste segregation into specific waste receptacles. Such waste included clinical and general waste (KDL Products, 2011).
16.	Key Elements: Waste Example: This hospital being a part of a larger organisation that operated both public and private hospitals implemented the same waste segregation practices as its sister hospitals (KDL Products, 2011).
17.	Key Elements: Waste Example: A waste management program was implemented at this hospital. The program includes such practices as waste segregation into specific waste receptacles. Such waste included clinical and general waste (KDL Products, 2011).
18.	Key Elements: Waste Example: This hospital had a perioperative waste management policy that included the management of various waste products including general,

Hospital number	Key element/s
	clinical, cytotoxic, and sharps (Aisbett, 2011).
19.	Key Elements: Energy, Water Example: This hospital had implemented a sustainable energy source such as solar energy to help address energy efficiency. Other implementations at this hospital included water conservation, and recycling processes specific to waste segregation practices (Maguire, 2007; KDL Products, 2011).
20.	Key Elements: Water, Energy and Waste Example: This hospital had implemented recycling practices that were specific to waste segregation. Other implementations that the hospital had introduced included water conservation and energy saving (Balogh, Freeman & Wells, 2011).
21.	Key Elements: Waste, Energy and Water Efficiency Example: This hospital had implemented an environmental plan to monitor its use of toxic waste and other recyclable waste material. Other implementations included decreasing their energy consumption, and increasing water efficiency (Uniting Care Health, 2010).
22.	Key Elements: Energy, Waste and Food Example: This hospital had initiated a 'turn it off' campaign to address energy consumption and was implementing waste segregation practices. This hospital also included the sourcing of local vegetables from the community to use across its campus (Mater Hospitals, 2011).
23.	Key Element: Water Example: This hospital had implemented a campaign for water management. The campaign was called 'Watch Every Drop' and included staff members from across the whole of the facility (Ramsay Health Care, 2007a).
24.	Key Elements: Waste, Water, Transport, Energy Example: This hospital had implemented elements related to waste management, water conservation, transport, and energy consumption. The hospital was the recipient of an environmental award for: implementing <i>Earth Friendly power... worm farms for kitchen waste...Carbon Neutral vehicles...Travel Smart Programme</i> ", and for water conservation (Ramsay Health Care, 2007b, p. 6).
25.	Key Element: Waste Example: This particular hospital was initiating a waste management program. The program was in partnership with a waste management business that not only provided various receptacles for waste segregation, but also provided education on waste when required (KDL Products, 2011).
26.	Key Element: Waste Example: This hospital at the time of scoping had implemented waste strategies

Hospital number	Key element/s
	that were specific to health waste segregation. Such implementations included general waste and toxic waste materials (KDL Products, 2011).
27.	Key Elements: Energy efficiency Example: This healthcare organisation's management introduced a system to monitor energy, waste and water throughout its campuses, with this particular hospital paying close attention to energy efficiency (St. Vincent's Health Australia, 2012).

After identification of these climate-friendly hospitals, the recruitment for participants from these hospitals for phase two (interviews) was able to commence.

Recruitment of participants

The inclusion criteria required that the RNs had to have worked in a climate-friendly hospital for at least nine months. This was so that the participants would possess a *"reflective grasp of the phenomenological structure of the lived meaning of time"* (van Manen, 1990, p. 77). Weierbach, Glick, Fletcher, Rowlands and Lyder (2010) conducted a study on: 'Nursing research and participant recruitment: Organizational challenges and strategies.' The study was undertaken in two Magnet hospitals which took six months to achieve status. Therefore nine months inclusion criteria for participating in this study ensured that the participants had enough time to enable them to understand their work environment and culture, and to reflect on the experiences of working in a climate-friendly hospital.

The primary process of recruitment was via an invitation to participate through the distribution of flyers to hospitals identified in phase one. The request was to display the flyers in tea rooms and other areas of high thoroughfare. Other

forms of recruitment included placing flyers on seats when workshops were attended and via snowballing techniques. A snowballing technique is where individuals with desired characteristics are aptly placed within social networks to recommend like-minded participants for interviews (Groenewald, 2004; Sadler, Lee, Lim, & Fullerton, 2010). I utilised this method to expand my availability of participants when other recruitment sources did not yield participants.

Researchers wishing to gain access to potential participants or organisations are often met with the task of gaining permission from gatekeepers (Neuman, 2006).

Gatekeepers are seen as managing the access to organisations such as hospitals (McAreavey & Das, 2013). I contacted the appropriate personnel of climate-friendly hospitals by phone, email or via letters asking for permission regarding placement of flyers. Invitations to display the flyer were extended to hospitals in diverse jurisdictions and were sought as far west as Perth, Western Australia which is approximately 4,478 kilometers (2782.5 miles) from my study base. The process of accessing participants for research can be quite difficult and may take some time to develop trust and an understanding with the gatekeepers (Moll, 2012). Ultimately ten participants came from seven hospitals that met the criteria. Two participants came from Victoria 1883.9 Kilometers (1170.60 miles) from study base, one participant from New South Wales 1041.9 Kilometers (347.40 miles), and seven from various places in Queensland which was the dominant state.

These seven participating hospitals will be discussed further.

Seven participating hospitals

Hospital A

Table 22
Overview and services of hospital A

Overview of hospital	Services provided
This hospital is a major referral hospital for its area. The organisation is also a teaching hospital covering a base population of around 260,000 with a further catchment area of 140,000. In addition this hospital is in a popular holiday location with the possibility treating more than 100,000 tourists annually.	Outpatients. Surgical. Medical. Women and Family. Diagnostic. Allied Health. Mental Health. Home and Community Care. Aged care Assessment. Oral Health. Aboriginal and Torres Strait Islander Health Services. Nursing Home. The hospital also extends its services to provide greater than seventy sub-specialties.

At the time of the study Hospital A had 441 beds and employed 1,354 nurses inclusive of RNs and ENs (QH, 2014). Three RN participants volunteered from this hospital. Key elements implemented - energy and water.

Hospital B

Table 23
Overview and services of hospital B

Overview of hospital	Services provided
This hospital is situated in one of the fastest growing regions in the State of Queensland. This public teaching hospital sees over 75,000 people in its emergency department every year.	Acute and Maintenance Renal Dialysis. Coronary Care. Emergency Department. Hospice Care. Obstetric. Paediatric. Ears Nose and Throat. Endocrinology. General Medicine. Gynaecology. Neurology. Orthopaedics. Respiratory Medicine. Surgical.

Hospital B had 322 beds and a nursing cohort of 1,214 (QH, 2014). One RN participant volunteered from this hospital. Key element implemented - waste.

Hospital C

Table 24
Overview and services of hospital C

Overview of hospital	Services provided
This hospital serves not only the state of Queensland, but extends to incorporate patients from Northern New South Wales and the Northern Territory.	Surgical and perioperative. Internal Medicine. Women and Newborn. Nursing. Corporate. Medical. Critical Care and Clinical Support. Allied Health. Oncology. Mental Health. Oral Health. Besides providing the above services this hospital extends to offer greater than 56 subspecialties.

The total number of beds for this hospital was 1,024 with a nursing workforce of 3,120 (QH, 2014). One RN participant volunteered their time. Key element implemented - waste.

Hospital D

Table 25
Overview and services of hospital D

Overview of hospital	Services provided
This hospital is large teaching and research facility incorporating its own lecture theatre. The hospital also includes laboratories for clinical skills and rooms for conducting tutorials.	Emergency. Medical. Coronary Care. Intensive Care. Mental Health. Surgical. Outpatients. Pathology. Rehabilitation. Renal Dialysis.

Hospital D had 454 beds in total with a nursing cohort of 96 (QH, 2014). One RN participated. Key element implemented - waste.

Hospital E

Table 26
Overview and services of hospital E

Overview of hospital	Services provided
This public hospital is renowned nationally for its specialties in adult health. These specialties are within the areas of trauma and transplantations.	Surgical. Medical. Rehabilitation. Oncology. Mental Health. Nursing. Clinical Support. Besides offering the above services the hospital also provides more than 40 subspecialties.

This hospital had 944 beds and 3,036 nursing staff (QH, 2014). One RN participated in the study. Key element implemented - waste.

Hospital F

Table 27
Overview and services of hospital F

Overview of hospital	Services provided
Part of a larger health network, this particular hospital is renowned internationally for its leadership in innovative ideas, research, teaching, clinical cares and medicine.	Oncology. Transplants. Medical. Surgical. Emergency. Outpatients. Mental Health. Community Care. Aged Care. Palliative Care. Allied Health. Endocrine.

The bed allocation for this hospital was difficult to ascertain and is somewhere between 200-500. It employed 850 nursing staff at the time of data collection (MyHospitals, 2015). One RN volunteered their time to this study. Key elements implemented - waste, water and energy.

Hospital G

Table 28
Overview and services of hospital G

Overview of hospital	Services provided
This hospital is one of the leading facilities in Australia for teaching, research and training. The hospital is one of three facilities that make up this particular health group.	Renal Dialysis. Spinal. Transplants. Surgical. Genetics. Cardiac. Endocrine. Geriatrics. Oncology. Mental Health. Rehabilitation. Infectious Diseases.

Hospital G had 749 beds and 2100 nurses employed full time. Two RNs participated from this hospital. Key elements implemented - water, energy and waste (MyHospitals, 2015).

As previously stated the scoping of hospitals to identify those who were climate-friendly was required in order that a purposeful sample of RNs could be recruited. Registered Nurses were chosen over ENs because of the number of registrants and because RNs have a greater Scope of Practice and level of autonomy than ENs (Nurse in Australia, 2015). Current figures up to March 2017 showed that there were 280,493 RNs opposed to 62,085 ENs registered to practice nationally (NMBA, 2016). Participants volunteered from a wide range of departments and clinical areas including special care baby unit, emergency department, mental health, neonatal intensive care, theatre recovery, maternity (birth suite), alcohol, tobacco and other drug services and adult intensive care.

Sampling

The number of participants for this study was ten. Small purposive samples have been acknowledged by many authors as being acceptable for phenomenological studies (Oxley, 2016; Basson & Mawson, 2011; Connelly, 2010). Smith and Osborn (2008, p. 56) affirm that interpretive phenomenological analysis has been undertaken with *"one, four, nine, fifteen and more."* Table 30 illustrates the variety of sample numbers utilised in phenomenological studies. Smith and Osborn (2008) go on to point out that there has been a recent trend to conduct hermeneutic (interpretive) phenomenological studies with small samples as this shows commitment to a more detailed account of interpretation, thereby sacrificing large sample sizes for depth.

Table 29
Phenomenological sample sizes

Author/date	Study	Sample size
Basson and Mawson (2011).	The experience of violence by male juvenile offenders convicted of assault: A descriptive phenomenological study.	Three (3).
Blegen, Hummelvoll, and Severinsson (2012).	Experiences of motherhood when suffering from mental illness: A hermeneutic study.	Five (5).
Doumit and Abu-Saad (2008).	Lebanese cancer patients: communication and truth-telling preferences.	Ten (10).
Dunn (2012).	What keeps nurses in nursing?	Eight (8).
Finlay (2006).	Dancing between embodied empathy and phenomenological reflection.	Two (2).
Jaromahum and Fowler (2010).	Lived experiences of eating after esophagectomy: A phenomenological study.	Seven (7).
Liou and Cheng (2011).	Experiences of a Taiwanese nurse in the United States.	One (1).
Shinebourne and Smith (2009).	Alcohol and the self: An interpretive phenomenological analysis of the experience of addiction and its impact on the sense of self and identity.	One (1).

Strauss and Corbin (1998) also investigated the number of interviews required for a qualitative study. They assert that there is not a particular quantity but sufficient interviews can be determined when the question is answered and when no new data is being gathered. The authors describe this as saturation.

Data saturation say Fusch and Ness (2015, p. 1408) "*is reached when there is enough information to replicate the study when the ability to obtain additional new information has been attained, and when further coding is no longer feasible.*" Although the sample size of this study might be considered small it was determined as no more original experiences were identified through the interviewing process at interview ten.

Data collection

Data collection was undertaken using semi-structured, open-ended questions during an individual interviewing process of the participants experiencing the phenomenon (Connelly, 2010; Creswell, 2003). This type of in-depth interview could be considered disruptive and personal as the researcher enters the lifeworld of the participant (Marshall & Rossman, 2011). However, given that entering into the lifeworld of the participant was the aim of the research and that participants were aware of this when they consented, in-depth interviews were appropriate to gather individual experiences (Marshall & Rossman, 2011).

The interviews were conducted either via telephone conversations or face to face and lasted between forty minutes and one hour in duration. Three interviews were conducted via face to face and seven interviews took place via telephone. Researchers conducting qualitative semi-structured, in-depth interviews generally rely on face-to-face interviews (Sturges & Hanrahan, 2004).

A telephone interview however according to Harvey (1988) is typically thought of as appropriate only for shortened ones. *"The issue of the suitability of the method is more complex than these simple guidelines suggest, however. Suitability needs to be considered in light of the particular research endeavour "* (Sturges & Hanrahan, 2004, p. 108).

Face to face interviews were felt to be easier to conduct as I could observe vital aspects of the interview such as body movements, non-verbal responses and times of silence. Telephone interviews were slightly more challenging given the nature of not being able to see the participant. One of the ways to overcome this challenge though was through active listening. According to Heidegger (1962, p. 206) we do not understand if we have not heard correctly, because *"just as linguistic utterance is based on discourse, so is acoustic perception on hearing...being-with develops in listening to one another."*

Telephone interviews were an advantageous option for research that covers a huge geographic area. Research conducted in this study encountered the tyranny of geographic distance; Australia is huge. Some participants also elected to be interviewed by phone. Minichiello, Aroni, and Hays (2008) concur that telephone interviews are being used more frequently and are invaluable when the researcher is up against study time, economic constraints and travelling large distances.

Tools for data collection included: two digital audio recorders (one used as backup), notebook, writing material to jot down key words and a journal for self-reflection. All interviews were audio recorded with consent and transcribed verbatim by myself to help grasp the essential meaning of the stories (Blegen et

al., 2012). According to Easton, McCormish, and Greenberg (2000) paying attention to detail is paramount to getting the most out of the data. The authors made a suggestion for researchers (which I found helpful) on the topic of equipment failure, stating that it is advisable to always take backup equipment that runs on batteries as writing copious notes can hinder actually listening to what the participant says.

Questions used to collect data

Prior to commencing the interview I asked participants how their day had been in order to build rapport. I also asked if they had thought of any questions regarding the research, as outlined in the information sheet, that they would like me to clarify. No participants had any questions. I then reiterated that they had given consent and commenced questioning in a very broad manner. This approach served a number of purposes; it helped break the ice and thus develop rapport which in turn would assist participants to feel comfortable and it drew broad information that could be the beginning of a more refined response.

Broad questions, say Leech (2002) are known as 'grand tour questions' and with probing will lead to in-depth responses to more specific questions. This type of questioning from the broad to the specific reminded me of the inverted triangle which I drew in my journal as shown in Figure 9. The triangle helped me focus on the kind of opening question that was best to commence with. Of necessity this was a question that would help guide the participants into thinking about the phenomenon under inquiry from a generalised to a more focused position.

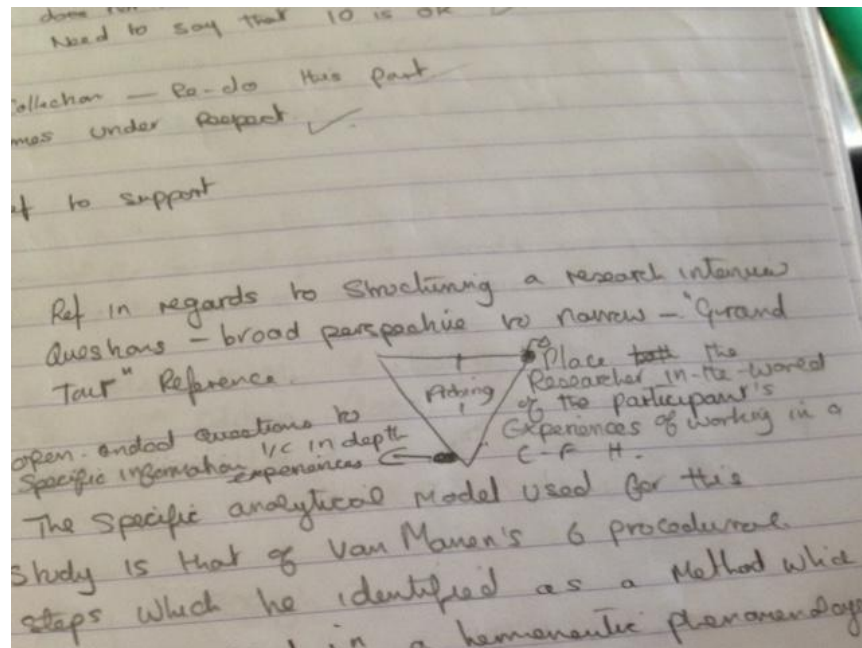


Figure 9. From research journal, broad perspective to narrow the need to capture the bigger picture before moving to specific

Upon commencement of interviewing I felt that the first questions I asked were slightly awkward. I am a novice researcher and at first I was not fully comfortable conducting specific research interviews. Research interviews are very different to other kinds of interviews and it is important to consider context, modes and types (Mann, 2016). To assist with my research development and interview techniques I practiced with a colleague, doctoral peers and my supervisors. Reading the journal that I kept throughout my study, I came across one of the first questions I pondered which was "...can you tell me...?"

Research, such as that undertaken for a PhD is a learning journey and as I progressed I became more comfortable with my interviewing technique. The initial question was refined to "*I'm really interested in knowing what it is like to...*?" This I felt was more in keeping with a hermeneutic phenomenological approach.

This question was better received by the participants as the words *"I'm really interested"* indicated that I was genuinely interested to hear what they had to say. It demonstrated that I valued their opinion and as a result the participants appeared to be more comfortable and divulged more of their experiences. The following Tables, 30, 31 and 32 illustrate the types of questions used. The first question helped to place me in-the-world of the participant.

Table 30
Broad question

Broad Question
<i>I'm really interested in knowing what it is like to...?</i>

The second question was more specific and one where the participant was asked to describe their clinical experiences whilst working in a hospital that is considered climate-friendly.

Table 20
Specific Question

Specific Question
<i>Please choose a day and describe your nursing care experiences to me whilst working in a hospital that is considered climate-friendly?</i>

The above questions guided the interview and were focused on gathering responses that would address the research aim. As the dialogue between the participants and I progressed, further questions arose as a result of their responses. These questions are known as probing questions which are useful to intensify the depth of information (Smith, Flowers, & Larkin, 2013). These probing questions included examples such as those offered in Table 33.

Table 21
Probing questions

Probing Questions
<i>In your experience how does that work?</i>
<i>How did you find that?</i>
<i>How do you feel about that?</i>
<i>Tell me more about that?</i>

In order to indicate to a face to face participant that I was deeply immersed in what they were saying I found a nod of the head whilst they were speaking allowed the flow of their discourse to become uninterrupted. To indicate interest and that I had heard the participant in a telephone interview I uttered the sound Mmm or said, “I see.” This portrayal of interest according to Silverman (2006) allows the participant the freedom to speak and encourages them to do so. Upon collection of the data the next step was analysis.

Data analysis - thematic isolation, interpretation and reflection

To uncover and isolate thematic statements the structural analysis followed three sequential analytical steps identified by van Manen (1990). These were a wholistic or sententious approach, a selective or highlighting approach, and then a detailed line-by-line approach.

Wholistic/sententious approach

This approach ensured that I attended to the text as a whole and asked what fundamental meaning of a statement could be captured. A phrase was then formulated to express the meaning. An example of this is now offered. After reading and re-reading the text I identified that some participants perceived that climate change initiatives were adversely affecting nursing practice. For instance, in order to be more climate-friendly air conditioners were turned off for

the weekends. This was raised by the participants in the context of thermoregulation. Participants described how consideration was required to be given in regards to a patient's temperature at the beginning of a new week due to the air conditioner having been turned off all weekend in the department. Nurse Unit Managers (NUMs) were seen as constantly "*battling with economics*" and "*having to budget*" but that resistance to what were described as some "*cost saving measures*" posited as climate-friendly initiatives were not seen to be in the interest of the patient. van Manen (1990) states that this description can be placed into a sententious formula.

Selective or highlighting approach

Selective reading was conducted by listening to and then reading the text several times whilst searching for a particular statement(s) or phrase(s). These were identified as revealing the experience being described. Statements were underlined, circled and/or highlighted.

Detailed line-by-line approach

During the detailed line-by-line approach the researcher examined closely every single sentence or sentence cluster so that the experience being described could be revealed (van Manen, 1990).

These three steps of van Manen (1990) were supported by Gadamer's philosophical method of understanding through the fusion of horizons and hermeneutic circle which was discussed earlier and which, according to McCloud, Harrington, and King (2012), are paramount to a hermeneutic study. As "*all phenomenological human research efforts are really explorations into the structure of the human lifeworld...four fundamental existentials...of which all*

human beings experience the world" (van Manen, 1990, pp. 101-102) has been included in the study.

These existentials which help bring reflective praxis to the research together with the above three steps, fusion of horizons and the hermeneutic circle, add true meaning to the phenomenon in question. Haahr, Kirkevold, Hall, and Ostergaard (2011) like van Manen (1990), also recognise four lifeworld existentials: lived body, lived time, lived space and lived other. The lived body is how individuals exist in the world through their bodies; lived time takes into consideration past, present and probable future; lived space of an individual can bring to mind differences in senses and feelings, and lived other is our relationships and how impressions are made through bodily awareness (Haahr et al., 2011). These are discussed further in the Findings Chapter.

Upon reflection I tried to imagine how the participants had come to experience the phenomenon and how they existed within a climate-friendly hospital. I reflected upon how their past may have had an influence on their present experiences within such organisations and how this would influence their perceptions and also their future practices. I remained aware and respectful of their senses and feelings as I journeyed with them into their world of original experiences and was cognisant of how first impressions are often constructed. This kept me mindful of how I, as the researcher and not another RN/RM, interacted with the participant. According to van Manen (1990, p. 105) *"these four existentials...can be differentiated but not separated."* Even though I used processes from both van Manen and Gadamer, I needed to maintain the

authenticity of the study that was achieved by maintaining a rigorous approach to the data analysis.

Rigour in data analysis

In qualitative research rigour is determined to be "*part of the iterative, self-correcting nature of research*" (Ryan-Nicholls & Will, 2009, p. 70). Rigour within qualitative research is determined by the genuineness of the process used in the study. Tobin and Begley (2004, p. 390) point out that researchers are "*not rejecting the concept of rigour but are placing it within the epistemology of their work and making it more appropriate to their aims.*" Rigour in qualitative research is also considered in terms of trustworthiness, credibility and transferability. Houghton, Casey, Shaw, and Murphy (2013) identified a framework for rigour from their paper on a qualitative case-study.

The framework consists of credibility, dependability, confirmability and transferability. These criteria were initially presented by Lincoln and Guba (1985) but in addition to these in 1994 the researchers added a fifth criterion to that outlined above, which was authenticity (Guba & Lincoln, 1994). All of these elements make a piece of qualitative research, trustworthy.

Trustworthiness

The trustworthiness of a study according to Rolfe (2006) is dependent on the judgement of reader of the report. The purpose of this research was to collect and interpret truthfully, experiential stories regarding what it was like to work in a climate-friendly hospital as told by the RN participants. The lived experiences of the participants became understood and were informed by personal perspectives, history and language (Chang & Horrocks, 2008) leading to a

credible narrative. Whilst not all researchers may interpret data in the same way, the research design used in this project is both transferable and dependable, thus, leading to confirmability. Roberts, Priest, and Traynor (2006) suggest that trustworthiness can also be displayed through the primary research question, data collection and analysis, all of which have been fully explained and justified previously.

Credibility

Credibility as defined by Lincoln and Guba (1985, p. 329) is *"a trustworthy criterion that is satisfied when source respondents agree to honour the reconstructions; that fact should also satisfy the consumer."* According to Polit and Beck (2012) credibility refers to the truth of the data or the participant views and the interpretation and representation of them by the researcher.

Credibility in this research was enhanced when describing my experiences as a researcher. Sandelowski (1986) also suggests that a qualitative study is also considered credible if the descriptions of human experiences are immediately recognised by individuals that share the same experience. Credibility was also supported in this research through my demonstration of engagement, methods of observation and audit trails. During the interviews consistent paraphrasing occurred to ensure the researcher was correctly understanding and interpreting the participants' view point. Tobin and Begley (2004) and Whittaker (2002) argue that credibility is comparable with internal validity and that demonstration of credibility can be seen through peer debriefing, Higher Degree Research (HDR) supervision and audit trails such as a journal.

All aspects of the study were discussed with my supervisors who were familiar with my study and with fellow PhD candidates who were far less familiar with my work. These critical discussions occurred throughout the candidature of my PhD and constantly during the process of research. These debriefing sessions promoted discussions and questions with the feedback being recorded in a journal (audit trail) and used in the study (Barusch, Gringeri, & George, 2011).

Transferability

Transferability is also known as 'fittingness' in qualitative research and means the findings have the ability to be transported from one group to another; or across persons, setting and times (Ryan-Nicholls & Will, 2009; Thomas & Magilvy, 2011). Shenton (2004) states that it is vital that the description of the phenomenon in question has a narrative which is deep and sufficient for readers to understand and make comparisons with situations they have seen emerge. This qualitative study meets this criterion as the results have meaning to individuals not involved in this study and readers can associate the results with their own experiences. Researchers, say Sharts-Hopko (2002), need to provide enough information to enable others to make decisions about transferability in order to give them confidence in transferring the study results and conclusions to other research projects. This study, the first to be undertaken of its kind and thus a contribution to new knowledge, can be understood to apply to other settings or groups (Polit & Beck, 2012).

Dependability

Whittaker (2002) addresses dependability (auditability) as a type of action of what was done across an entire study and why it was done. A dependable

research project is one that other researchers may follow and apply the procedure to a study of their own. Dependability, therefore, refers to the constancy of the data over similar conditions (Polit & Beck, 2012). Meadows (2003) points out that this can be achieved by research questions that should be clear and located within a research design that is appropriate. Dependability can be facilitated by various strategies such as documentation of data collection and analysis (Pitney, 2004). Dependability in this research has been demonstrated by the researcher presenting a comprehensive and detailed methodological description which permits the integrity of the research findings to be scrutinised.

Confirmability

Confirmability becomes finalised when credibility, transferability and dependability become fulfilled (De Witt & Ploeg, 2006). Confirmability refers to the researcher's ability to demonstrate that the data represents the participants' responses and not the researcher's biases or viewpoints (Polit & Beck, 2012). I have demonstrated confirmability by describing how conclusions and interpretations were established and exemplifying that the findings were derived directly from the data. This is exhibited in this thesis by the provision of rich quotes from the participants that depict each emerging theme

Conclusion

This research design chapter was divided into two sections: methodology and method. Section one described the appropriateness of using a Heideggerian phenomenology to undertake a study of RNs working in a climate-friendly hospital. It also comprehensively discussed the researcher's ontological and

epistemological stance and why Heidegger's hermeneutic phenomenological methodology was significant in this nursing study.

Section two commenced with a method overview that contained van Manen's (1990) six research activities that he considered as an appropriate method for human science research. The chapter then discussed the four ethical principles of research and illustrated how they applied to this study. The second section incorporated phase one - the process and analysis of the scoping of 27 Australian hospitals over four different states. It was imperative to the study that phase one be completed as it informs phase two - 'what it means for a RN to work in a climate-friendly hospital.' From the 27 hospitals that were identified as meeting that of a climate-friendly hospital RN participants came from seven.

A description of the process of data collection followed and data analysis was also discussed. In addition, the three analytical steps for isolating themes and four fundamental lifeworld existentials as a guide to reflexive praxis in research were fully explicated. Consequently, the chapter has made an original contribution to knowledge about what it means for a RN to work in a climate-friendly hospital by fully describing the research design.

Chapter Four - Findings will discuss phase two of the study which was the experiences of the ten participants and the meaning of the phenomenon in question.

CHAPTER FOUR

FINDINGS

Introduction

This chapter presents phase two of the study that brings meaning to the question of 'what it means for a RN to work in a climate-friendly hospital.' The narrative in this section divulges the experiences of the ten participants that have been uncovered by analysing data (as described in the previous chapter) which were collected during the course of in-depth individual interviewing.

Phase two: The voices of the ten participants

Phase two invites the reader to hear from the ten participants. It presents the themes and sub-themes identified through a methodical analytical process as detailed in the previous chapter. The emergent themes and sub-themes are illustrated through the privileging of the participant's voices. Themes and sub-themes throughout the chapter commence with a capital letter and bolded as per the conventions used for this thesis. These were outlined on Page 8.

As a researcher, I entered into the lifeworld of the participants via a process of conscious consideration regarding the four fundamental existentials which van Manen (1990) posits we all experience. These include; lived body, lived time, lived space and lived other (relational). As a result of this guided introspection this chapter depicts the experiences of the participants through their bodily existence (lived body) in a climate-friendly hospital (lived space), together with their past, present and future experiences (lived time) and their relationships (lived other) with others.

The four existentials were used to guide the conceptualisation of the three themes together with van Manen's three sequential analytical steps mentioned previously in Chapter Three and re-iterated here with tabled examples:

Wholistic/sententious approach, the selective or highlighting approach and the detailed line-by-line approach (van Manen, 1990).

The first step: Wholistic/sententious approach was an overall interpretation by the researcher after carefully listening to what the participants had to say with respect to budgeting and the implementation of environmentally sustainable activities, whose actions were not always seen in the best interest of the patient

Table 33.

Table 22
Wholistic/sententious approach - interpretation by researcher

Wholistic/Sententious Approach
<i>A RN needs to be able to act tactfully towards managers, who are under fiscal pressure, to advocate for their patient's best interest.</i>

The second step: The selective or highlighting approach was where the researcher looked for phrases that particularly stood out Table 34.

Table 23
Selective or highlighting approach related to the experience of recycling

Selective or Highlighting Approach Related to the Experience of Recycling
<i>In terms of the person that takes them away, I guess they'd probably be trained not to look at them (Christine).</i>
<i>Definitely you're failing to meet the competencies because you're not upholding patient's confidentiality (Hannah).</i>

Christine was discussing a climate-friendly initiative that was introduced into her place of work. The element she spoke about was 'recycling and how the person who was taking away the recycling bin was most probably trained to do the right

thing in terms of appropriate documentation destruction. Christine had been used to discarding her own nursing notes, but now had to entrust this task to another as a result of a new hospital implementation that was considered environmentally sustainable.

Hannah was also concerned about entrusting the destruction of confidential patient notes to another person, someone that was unknown to her and with whom she had not developed a level of trust. Hannah described what she perceived to be a possible failing of a professional competency (standard) if a patient's confidential information entrusted to her was not upheld as a result of a new disposal initiative.

The final step: The detailed line-by-line approach, here the researcher carefully read every single sentence or sentence cluster asking herself what was so revealing about what the participant was describing about their experience? (van Manen, 1990). Two examples of a sentence and a sentence cluster are provided in Tables 35 and 36.

Table 24
Example 1: Sentences and clusters

Sentences and Clusters
[Sentence:] <i>So it's been easy to transfer it to the workplace (Stephanie).</i>
[Cluster:] <i>Umm they're not that, I guess they're not really new changes. They are things that people do in their own homes, so it's been easy to transfer it to the workplace (Stephanie).</i>

This first example illustrates the experience or action of recycling at work as easy to accept. This was because Stephanie could identify with the practice of recycling which was also carried out in her own home.

Table 25

Example 2: Sentences and clusters

Sentences and Clusters
[Sentence:] <i>I don't think there is a huge risk posed in that regard because the process that we have in place (Brenda).</i>
[Cluster:] <i>I don't think there is a huge risk posed in that regard because the process that we have in place. If on the other hand people were just throwing them out into the normal rubbish bin umm that would raise more concerns for me umm but that's not the practice that we have (Brenda).</i>

The second example illustrates how Brenda is unconcerned about recycling and thought it posed no risk to confidentiality due to conducting a safe practice within her particular unit. These three sequential steps with the support of Gadamer's fusion of horizons and the four existentials aforementioned earlier, demonstrate how the data was analysed and how the following themes and sub- themes become visible to the researcher.

The essence of meaning is therefore informed by the following themes:

Awareness of self within the social environment of a climate-friendly hospital;

Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward; and

The need to belong-encompassing a collective ownership of a climate-friendly hospital.

Figure 10 below illustrates the themes and sub-themes together with images which resonated with the researcher as connections to the main themes. The first image predicts a psychological aspect of awareness and being aware of self; the second image is about our existence as being-in-the-world. The last

image is a connection between the need to belong and the strong bond between mother and child and the longing for a bond between participants and a climate-friendly hospital.

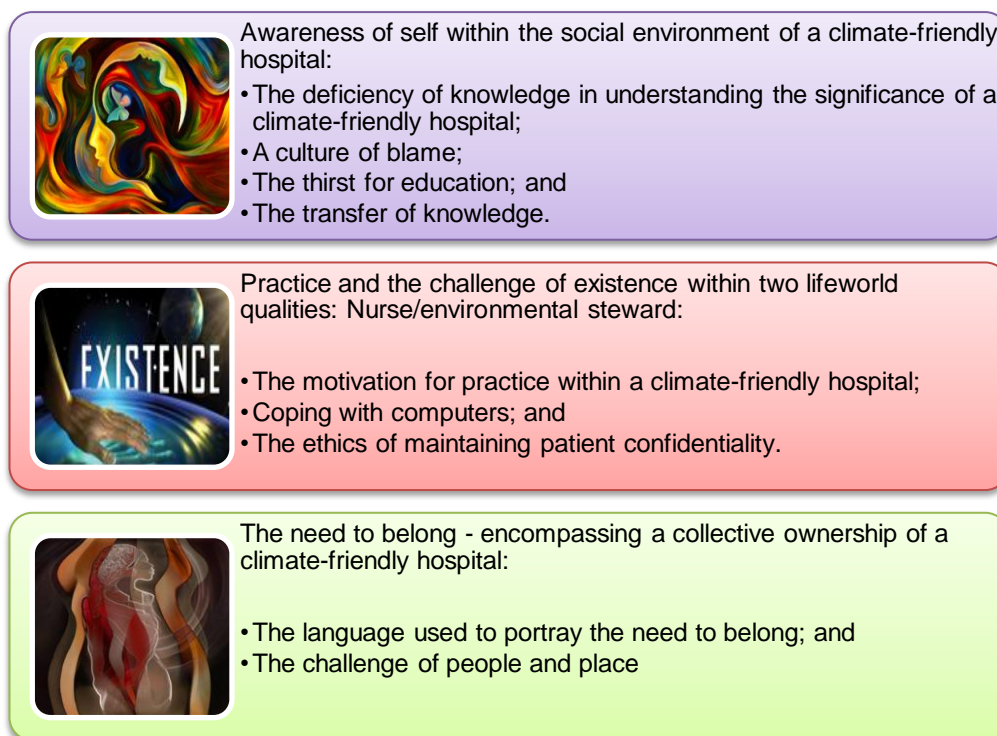


Figure 10. The essence of meaning informed by three themes

An in-depth discussion of these three themes will now be presented.

Theme: Awareness of self within the social environment of a climate-friendly hospital

The theme **Awareness of self within the social environment of a climate-friendly hospital** arose from the participants' encountering different practices to what they considered was normally expected of them. An example of this is in the way the participants' disposed of various materials. Prior to the participants' hospitals becoming climate-friendly the participants would combine materials such as plastics and paper to be disposed of in the same receptacles. However, since healthcare services are trying to reduce their carbon footprints

by introducing recycling, the practice of the disposal of certain materials within these facilities has changed. All participants were aware of these changes, what they were not aware of was the underlying reasoning behind such a change.

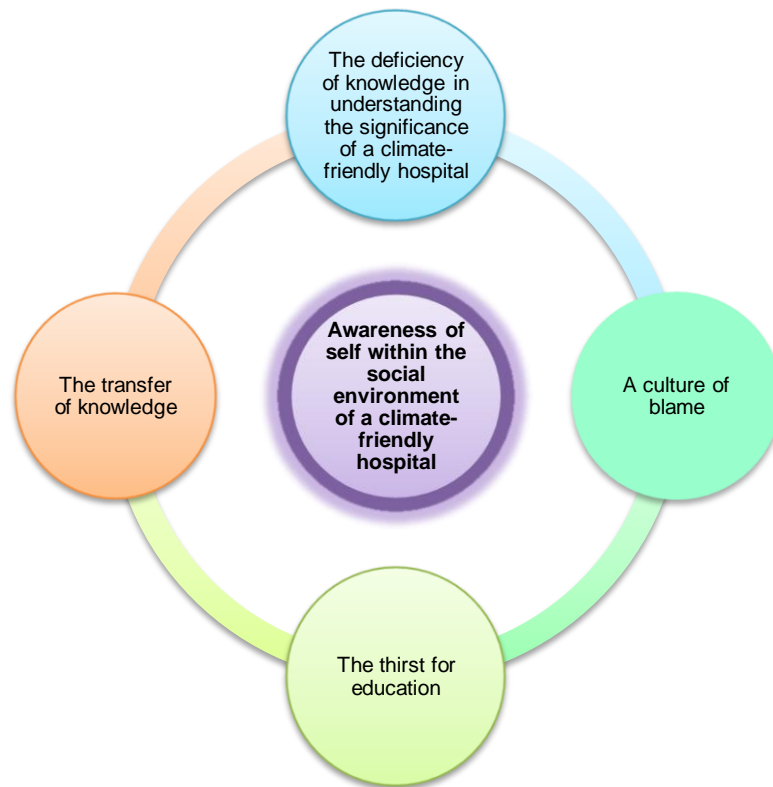


Figure 11. Theme: Awareness of self within the social environment of a climate-friendly hospital

The theme **Awareness of self within the social environment of a climate-friendly hospital** was thus informed by the following sub-themes: **The deficiency of knowledge in understanding the significance of a climate-friendly hospital**, **A culture of blame**, **The thirst for education** and **The transfer of knowledge**. These are presented above in Figure 11.

The sub-theme: The deficiency of knowledge in understanding the significance of a climate-friendly hospital informed the theme:

Awareness of self within the social environment of a climate-friendly

hospital in that all participants appeared not to have much knowledge about the particular implementations that were occurring in their climate-friendly hospital Figure 12.



Figure 12. Sub-theme: The deficiency of knowledge in understanding the significance of a climate-friendly hospital

There was a broad awareness but at a somewhat superficial level. This lack of knowledge is illustrated in the following quotes from Linda and Sarah:

...I guess there are always things happening that you don't know about... You're not going to know everything that's happening, and there are often people who want for a better word beavering away doing things that are making a difference, but you don't always get to hear about it (Linda) .

I'm sure there's lots of other things involved... Other aspects of climate-friendly, I think probably the unit that I'm working in is, is a new unit. We've been here about 12 months, a bit over 12 months, so I guess the design of the hospital. Probably the climate, climate -friendly that was

probably considered with the style of the hospital. I guess the size of the windows and we've probably got double glazing. So that helps with you know heat conduction and you know so we don't have the air, air conditioning so cold. We've also got sort of light blinds, sort of like venetian blinds sort of system on some of our windows, so I guess that helps to conserve, conserve the coolness inside and keep some of the heat out (Sarah).

Although Helen had some knowledge of a climate-friendly hospital, she nevertheless stated that she was not totally "...aware of what was going on" and in addition she perceived that it didn't really affect her. All participants were unable to relate to their actions and experiences to that which contributed to their facility moving toward becoming a climate-friendly hospital. Although all participants could acknowledge that there were some changes occurring the relationship between the changes and working within a climate-friendly hospital was not clearly identifiable to them.

Sarah contended that *"Well to be honest it's (climate-friendly hospital) not something I've ever really thought about...I hadn't really thought about it at all."*

Jane verbalised that she *"...didn't realise half the things..."* she was doing was *"...aiming towards a climate-friendly hospital."* Brenda never recalled seeing *"...anything about climate-friendly hospital"* or what they were *"...trying to do, what things were being instigated at the hospital to become climate-friendly."*

Healthcare services transitioning from traditional to climate-friendly initiatives often do so at their own pace. However, support systems for climate-friendly frameworks are seen as not always readily available for a smooth transition.

Hannah pointed out that there was not *"...a conscious collection of people going round to say...'oh you know, you know those boxes, have you put them away in the right spot?'...I think it's just a real routine normal practice with no conscious*

thinking from any, anybody or the hospital." Where a participants' knowledge was evident with regard to a particular element they were able to describe their experiences with more clarity. When discussing her experiences on conserving water, Stephanie described that her unit was *"...simply being I think sensible in what we are doing as far as conserving water...it's just a matter of just being wise I suppose, and a bit thoughtful about how you're going about your business."*

Despite being accepting of changes and having some knowledge of climate-friendly hospital implementations, Sarah could only identify with those practices that were specific to her area of work, stating *"...in my experience the only evidence I have seen of that where I work now is probably that we do some recycling."* This was also the same experience for Brenda, *"I can only speak from the area, the specialised areas that I work in... ."*

Although there could be considered a deficit in knowledge, participants were welcoming of climate-friendly implementations when frameworks were put in place and when support was perceived to be given from hospital management. However as participants saw themselves as only partially knowledgeable about environmental sustainable implementations some participants took on **A culture of blame.**

Sub-theme: **A culture of blame**

This second sub-theme that informs the theme of **Awareness of self within the social environment of a climate-friendly hospital** is that of **A culture of blame.** See Figure 13.

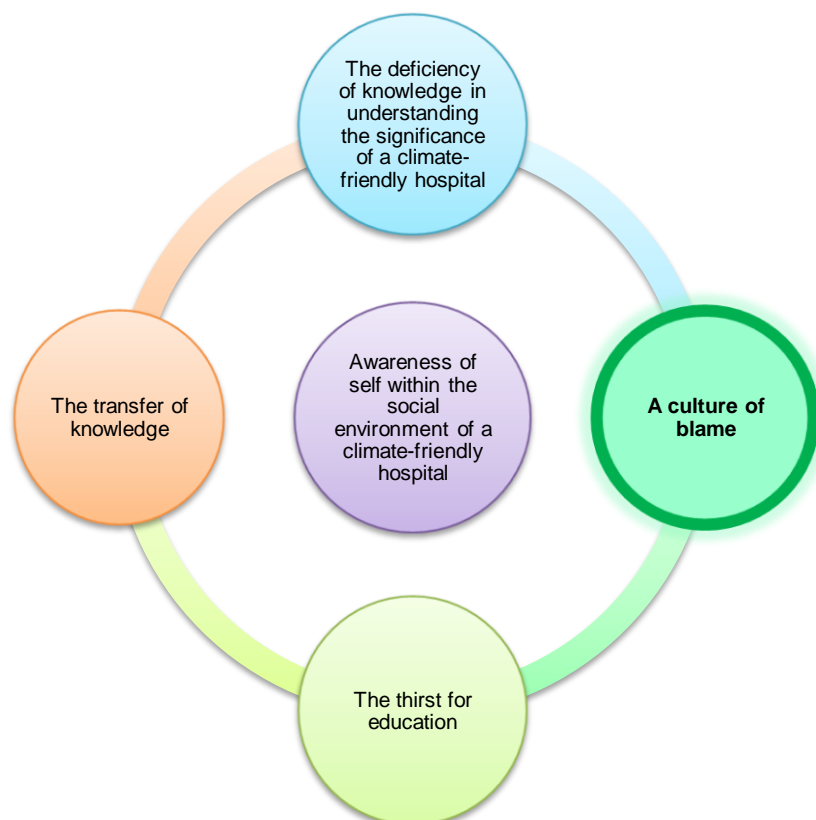


Figure 13. Sub-theme: A culture of blame

Regardless of only having basic knowledge of working within the space of a climate-friendly hospital some participants like Sarah described their experiences as being positive, *"Well there's only really the recycling so that's quite simple to do, it's quite simple, it's convenient, it's sort of right there in our faces. So it's a bit hard to avoid recycling our glass bottles, it's easy enough to do... ."* Stephanie's experiences were also described in a positive light as she stated that it had *"...not impacted greatly..."* on her *"...patient services."* Stephanie also described what the hospital had implemented impacted on the staff more, but then there had *"...been minimal impact [s]on our day to day working."*

Conversely, the participants whose experiences were perhaps more negative tended to attach some sort of blame toward either themselves or to the

organisation. It is evident that nursing has a culture that is encircled by acts of blame (O'Connor, Kotze, & Wright, 2011; Wood, 2011). Gorini, Miglioretti, and Pravettoni (2012) suggest this is because nurses work within an environment that is closely linked to errors in practice. Jane expressed her concerns about the way in which they disposed of narcotics on her unit:

...so any medications that we have in our unit are all narcotics so, they're supposed to go into the sharps container, but sometimes people just, I've seen people throw them down the sink, which then makes me think about what goes into the water supply. Well it stresses me when I see people not, not particularly that they are doing the wrong thing, it's just going into the water supply, well it's yeah. I don't know how that would affect clients other than that we all drink water... (Jane).

Laura thought that environmental issues should be addressed via a bottom up approach (initiated by individuals themselves) rather than a top down approach (mandated by the organisation). These feelings were verbalised as Laura felt that it was her responsibility as an individual:

...to make things happen rather than it being an organisational type approach. We haven't really got a lot of things in place which we should have though...I feel like it still needs a lot of prompting by individuals within our unit to actually carry things out, if that makes sense to you (Laura).

This narrative shows how Laura was ready to take on the blame for what she perceived as a lack of proactivity when it came to climate-friendly implementations. All participants, however, felt strongly about laying the blame on their organisations especially for the lack of information in respect to what other areas within the hospital were implementing. Being only partially informed brought a sense of isolation for participants from the rest of the hospital, and was even experienced within the same department. Helen explained how she

was *"...not aware of what's going on...I'm in recovery. I'm not in the operating suite, and, and I haven't heard anything. I'm not really sure what's going on."*

Other participants were frustrated that their hospitals were not doing enough to be recognised as a climate-friendly hospital. Even when participating in recycling for instance, there was uncertainty from participants as to whether this act of climate-friendliness was being carried out correctly. On certain occasions, and although accountable for their own actions, participants resorted to blaming their organisations for lack of appropriate practice because they were perceived as not disseminating enough information.

Although Helen had stated earlier that her awareness of what was going on was limited, she didn't really feel as though she had responsibility to gain more knowledge. She wanted her organisation to 'give' her the information because she was *"...too busy"* to get it for herself. Linda also blamed the organisation and said she was overloaded by the *"...modern computerised world..."* for having too *"...much stuff that you don't need to read, that you can just delete, delete, delete, delete."* Laura blamed the *"...environmental officer..."* within her hospital for not *"...familiarising..."* them *"...or making..."* them *"...aware of what there is [was] available...as far as recycling, that kind of thing..."*

Despite the culture of blaming self, blaming others (organisation) or blaming something else (workload) for their lack of knowledge the participants in general felt that environmental sustainability within their place of work was important. They found that they had to try to remain consciously aware of doing the right thing for the environment and considered this important even though their knowledge was limited, and they considered themselves too time poor to get

the knowledge they required. All participants verbalised the need for education on environmentally sustainable implementations, hence **The thirst for education** became a sub-theme of **Awareness of self within the social environment of a climate-friendly hospital**.

Sub-theme: **The thirst for education**

In-service education usually provided by the organisation in which the nurse works is one way in which nurses are kept up to date. Ongoing professional development is a registration requirement in Australia and as nurses are constantly reminded of the importance of evidence-based practice for quality outcomes (Wilson et al., 2015) it came as no surprise that **The thirst for education** Figure 14, emerged as a sub-theme of **Awareness of self within the social environment of a climate-friendly hospital**.

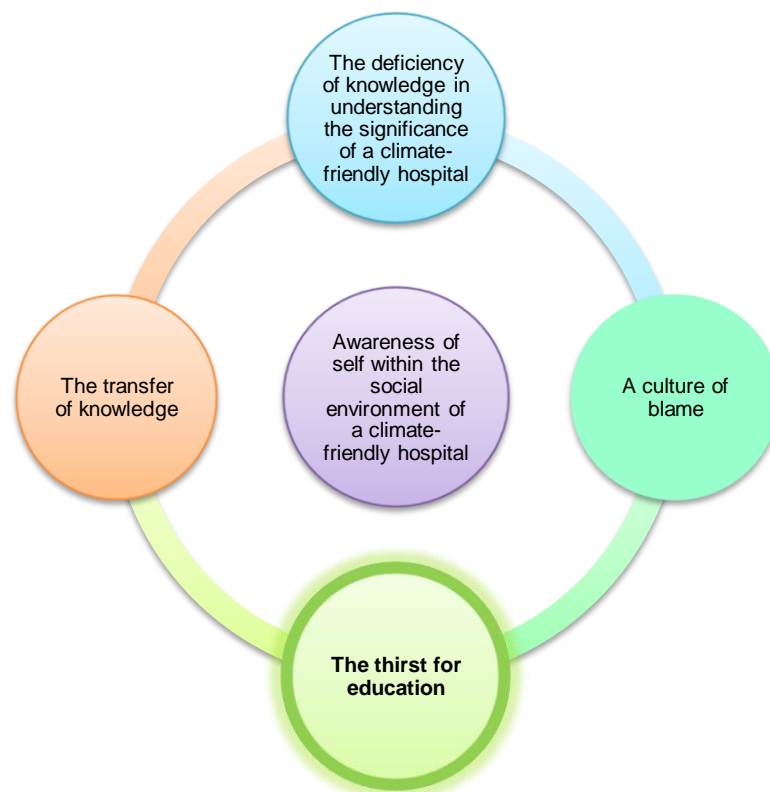


Figure 14. Sub-theme: The thirst for education

Participants such as Sarah often described their desire to become more aware of what was going on in their organisation. Sarah verbalised that this could be achieved through education "*...there probably needs to be a little bit more education about, or really just making people aware...something that I think probably should be done throughout the whole hospital...*" (Sarah). Certain organisations were described as providing some education for their nurses. This came in the form of directives or information from peers, or team members that could identify with some knowledge on climate-friendly implementations. Christine provided some pragmatic examples of how her area was:

...educating all the nurses to use simple dressings that will be likely to be removed, so it's just a matter of educating them on how to be climate-friendly I suppose, and to recycle paper they've used, don't print out any more than what you need to and to dispose of your waste appropriately... (Christine).

Providing support through educational means was expressed as being advantageous not only for the participants but also for the organisation itself. Hannah was clear on how she believed education should be delivered. She stated that her unit could definitely do with someone that could:

...come around and can really change practice, get involved, educate, be on the floor, understand what it's like, understand the implications of what's happening, and really work within the unit. And then you know, and on the ward and spread out through the hospital and really make a forefront change in terms of a lot of education... I just don't think anything will change unless we have people on the floor that can support us and help us...and you know kind of educate and show us the way to go about it (Hannah).

All participants were extremely supportive of hospitals becoming climate-friendly. Even though they lacked knowledge the participants described

wanting to do the right thing by the environment, their patients and their organisation. Linda thought it would be:

...great to know regularly what was happening...and I know they do send out occasional bulletins...and I know we do find out things when come [sic] and do in-services and education times on our wards, but it would be interesting to have regular updates that comes out say about you know every eight weeks... (Linda).

Although keen to have more education, Linda also stipulated that:

...if you have them too regularly it becomes one more tedious thing you've got to get off your email (laugh)...sometimes the old fashioned visual thing in front of your eyes ...does make a difference I think to the way you absorb it (Linda).

Participants verbalised their awareness of environmentally sustainable practices by making comparisons between what they implemented within their home lifeworld and what they implemented at their work lifeworld. Transfer of knowledge aided some participants in the transitional period from a traditional hospital to a climate-friendly one. However, some participants described the transfer as a frustrating process; **The transfer of knowledge**_Figure 15 is discussed as the last sub-theme to **Awareness of self within the social environment of a climate-friendly hospital**.

Sub-theme: **The transfer of knowledge**

A climate-friendly initiative such as recycling was identified by the majority of participants. The identification came through knowledge that was experienced as a task that was carried out by the participants within their home lifeworld. This knowledge empowered the participants who became more accepting of the process in the space of their existing work lifeworld.

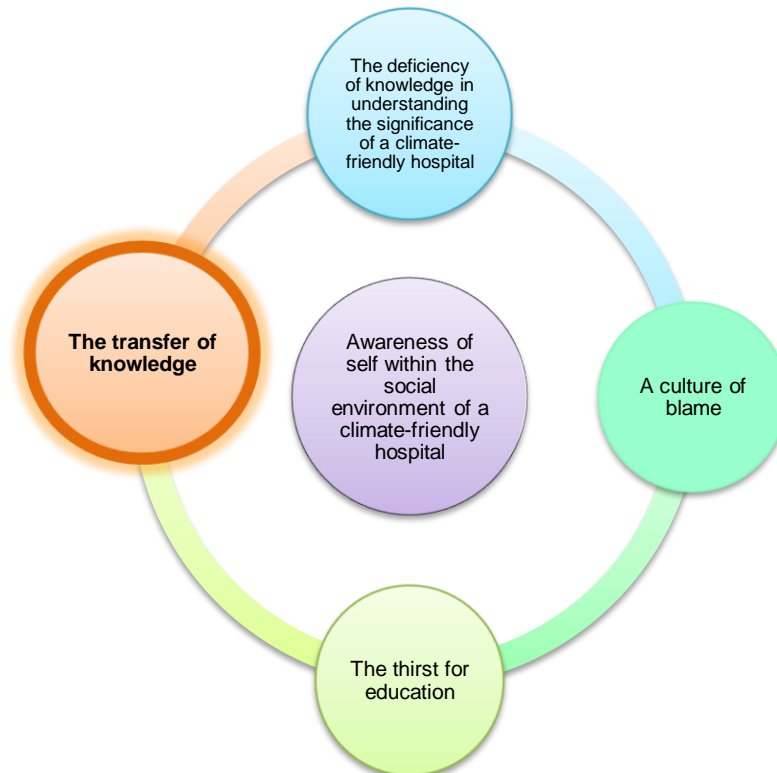


Figure 15. Sub-theme: The transfer of knowledge

Even though the process of recycling was somewhat different to that of their home lifeworld experiences, Stephanie described this type of activity as:

There are things that people do in their own homes, so it's been easy to transfer it to the workplace. Most people recycle at home with their sorting of their stuff into their recycling bins, their green waste, that sort of thing, and therefore it's not hard for us to do at work (Stephanie).

Brenda took on a different view to that expressed by Stephanie contending that she didn't "...apply the same principles at work as much..." whereas Ann elucidated that she took what she saw at work "...as doing that type of stuff at home, so you know, I like to make sure that you know, that the plastics go out into the recycle... ."

The transfer of knowledge was, however, not as straight forward for some.

Laura felt really disenchanted as she described her bodily existence with her work lifeworld:

...sorry to digress but when I was at home you know we're very aware of putting things in a recycle bin... You know as individuals we try as much as we can to help the environment, and then we go into big organisation and...they don't seem to apply the same kind of...well not really wanting to help the environment as much (Laura).

The experiences of participants with regard to **The transfer of knowledge** from home lifeworlds to work lifeworlds was described by participants as being variable. Some participants felt less empowered in their work lifeworld as their individual efforts towards environmental sustainable initiatives failed to produce the same results for them as their efforts from their home lifeworld.

The deficiency of knowledge in understanding the significance of a climate-friendly hospital, A culture of blame, The thirst for education and **The transfer of knowledge** were the sub-themes that informed the theme **Awareness of self within the social environment of a climate-friendly hospital**. Quotes from participants illustrate the connections and relationships to themes and sub-themes. Participants recognised their lack of knowledge. Some blamed themselves for the deficit whilst other participants transferred the blame to their organisation. Thus the participants discussed the desire for education in order to gain awareness of a climate-friendly hospital, but some wanted this 'given' to them rather than to seek it for themselves. Although some participants were able to relate their organisational experiences to that of outside activities such as those undertaken within the home lifeworld, **The transfer of knowledge** from outside lifeworlds to that of the existing work

lifeworld was described as being frustrating at times. This frustration was both disempowering and challenging for the participants on occasions and was not only experienced within the lack of awareness of self within a climate-friendly hospital, but was also carried across into the clinical milieu.

Theme: Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward

Establishing an identity of self within two lifeworld qualities was more challenging for some participants than others. van Manen (1990, p. 101) speaks of the intricate complexity of lifeworlds and the varying "*experiential lifeworld qualities*" such as those of a teacher, parent or researcher. The two experiential lifeworld qualities identified in this study include that of a nurse and also that of an environmental steward.

Even though van Manen (1990) would posit that there would be two separate experiential lifeworld qualities nurse/environmental steward, those who work within a climate-friendly hospital are required to combine the two. It is the combination of these two lifeworld qualities that is challenging for some participants as they are changing their 'nursing' identity in some respects and what roles and tasks are expected of them.

The theme: **Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward** is informed by three sub-themes: **The motivation for practice within a climate-friendly hospital, Coping with computers** and **The ethics of maintaining patient confidentiality**. See Figure 16.



Figure 16. Theme: Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward

The lifeworld quality of a RN meant that nursing practice was always at the forefront of their being-in-the-world of a climate-friendly hospital. Care and patient safety was regarded as the pinnacle of priority for all participants this was irrespective of what organisational imperatives there may have been for climate-friendly actions. As being-in-the-world of a climate-friendly hospital was not clearly identifiable for the participants, then the qualities of an environmental steward were not always obvious when they were engulfed in the world of nursing, Hannah pointed out:

You can put your normal waste in the waste bin and then you have your contaminated waste. So I think that actually you have to go away from your bedside to take your contaminated waste...So it's quite, so I think, it is an inconvenience for nurses to do it especially if you're busy, your patients very unwell, or your patient is intubated, you are less likely to go and walk away and put these things (recyclables) in the right section, because they are too far to go. So I think most people put them in the normal waste and it's a very poor input really (Hannah).

Direct patient care was thus verbalised as always taking precedence. The practices described above by Hannah portrayed that the patient was always the priority, especially when the nursing staff were busy. This meant that when pushed for time very little thought was given to environmentally sustainable practices. Hence **The motivation for practice within a climate-friendly hospital** emerged as a sub-theme.

Sub-theme: **The motivation for practice within a climate-friendly hospital**

Motivation for participants engaging in climate-friendly implementations was identified as being driven by the fact that the lifeworld qualities related to nursing were more powerful. This meant that motivation for practice Figure 17 was about 'doing the right thing' for the person in their care.

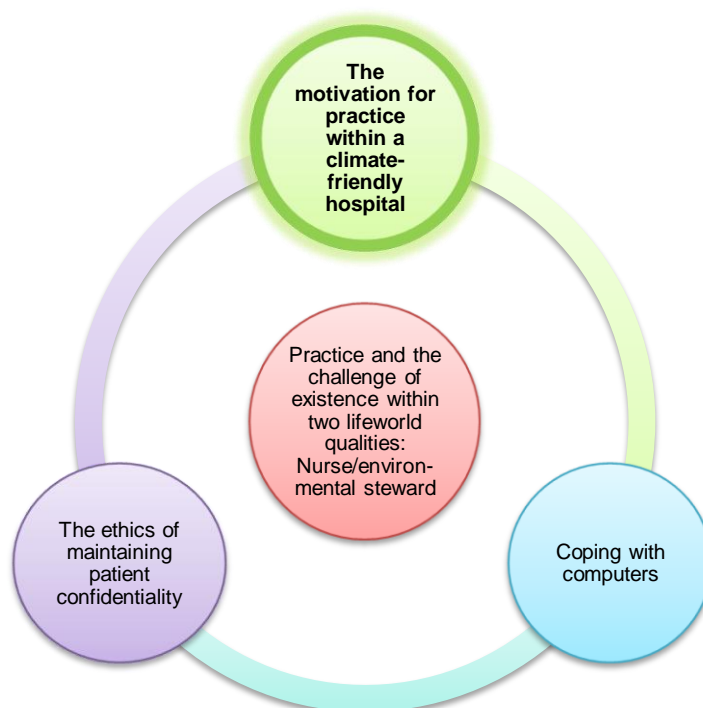


Figure 17. Sub-theme: The motivation for practice within a climate-friendly hospital

Nursing actions related to direct patient care were easily identifiable for the participants as opposed to those of a 'hidden' practice (one of climate-friendliness) that was not readily explicable. For example, when Sarah spoke about saving energy for instance, she did not readily identify with the need to turn lights down from an environmental perspective when she was at work. Sarah explained that when she worked nights, she turned some lights down *"...but really from the perspective of having it a bit, bit darker for the babies, and you know, friendly for the babies and the mothers. But not from an energy saving perspective, nah, we really don't do it."*

This type of behaviour indicates that nursing actions are predominantly directed by the perceived needs of patient care - environmental considerations at work always came second. Being an environmental steward at work for Sarah was practically non-existent especially when the discussion was centred on energy saving issues. Similar experiences were revealed by both Brenda and Hannah as they spoke of energy saving in their units:

We, we do have dimmer lights in the nursery...We you know...turn nearly all, turn all the lights down...and that probably isn't so driven by climate-friendliness either, that's actually about developmental care aspects for pre-termers and giving them you cyclic day-night lighting as opposed to being climate-friendly (Brenda).

...there'll be lights off during visiting hours for, for the patients to rest, but I think it's for, the idea is for the patients to rest it's not to save the electricity (Hannah).

The impetus for practice was clearly described as that motivated by the needs of the patient even when discussing certain environmentally sustainable implementations.

Sub-theme: **Coping with computers**

When the use of computers became more prolific in nursing practice the use of this type of technology was met with mixed feelings as participants described how they coped with implementing such technology into nursing practice Figure 18. All participants could visualise the connection of computer use to patient care with some also connecting them to positive environmental issues.

However for other participants computer usage was described as being downright frustrating. In 2009 The World Health Organization and Health Care Without Harm postulated that one way of achieving a climate-friendly hospital status and still addressing necessary economic, social, environmental and health aspects was to purchase green materials and products where possible (WHO & HCWH, 2009). These two organisations suggested the purchasing of energy efficient computers as one example of how to implement a climate-friendly initiative (WHO & HCWH, 2009).

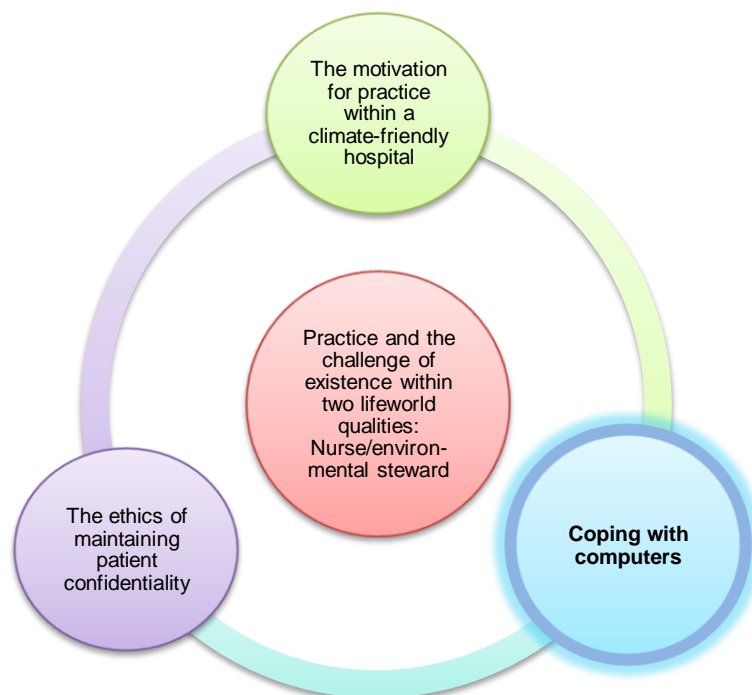


Figure 18. Sub-theme: Coping with computers

Participants discussed their awareness of computers being made more available to them within their work lifeworld. Many participants believed that this was to reduce paper usage and considered a climate-friendly implementation. Although the WHO and HCWH (2009) spoke of purchasing energy efficient computers, participants like Helen remarked that one of the nurses in her department still had to go *"around and turn off all the computers and monitors at night...to save power (energy)."* With respect to addressing computers from a social aspect Jane believed that despite using less paper their use was not beneficial in a therapeutic way in terms of a nurse relationship. Jane believed that computers did not reflect the best of practice that she could provide for her clients.

Jane's major concern was the nurse/client relationship which she thought was marred by having to use a computer. She had been nursing for *"...thirty something years..."* and thought that anything that took her away from a *"...face to face situation with a client"* was not the ideal situation. Jane went on to explain that, *"other people will think it's good, so it depends...But also like using computers in front of clients (pause) takes your eye contact away from the client, but also makes the client think that the computer is more important than them, often."*

Some participants preferred the more traditional aspect whereby anything of importance could be handwritten on progress notes. In other words participants like Laura described handwritten notes as being less of a hassle than trying to find the information on the computer, especially when she had been away from work for a certain period of time.

Although computers were identified as a familiar piece of technology within the work lifeworld of the participants for documenting nursing notes, and they were considered mostly positive with regard to environmental sustainability, they were deemed to be a burden and that patient care was better served the 'old fashioned way.' Ann described how she had been "...nursing for about 18 years..." and that everything she had needed to document was always handwritten. She went on to describe how everything now seemed to have to be accessed on a computer:

...It's like with care, you know it all gets put onto a computer...Even when I sit down and talk to a client it maybe an hour session, but in that hour session... the outcome of that will end up on a computer (Ann).

Ann explained how using a computer had cut down on her writing time "...but then again at the end of the day, its increased how much time I need to be in front of a computer...that can be a problem."

Contrary to the negative side of computer use posited by some participants with regard to direct patient care Hannah was quite enthused as she recalled her experiences and didn't find this climate-friendly initiative an inconvenience:

Oh yeah!...It's convenient because you can bring up all of your bloods, and then you know you're either going to have the computer or going to have paper... It's quite good and especially for the chest x-rays...we're not going to go and look at them up on the wall under the light anymore. It's just, just the way it is now. It's quite modern, so it's good (Hannah).

Linda also recalled positive aspects of computer use, "I would be probably very quick to say that it's lovely to access things like patient histories, and just with a couple of flicks of the button you can have pathology tests."

Despite the fact of being frustrating at times computers do contribute to environmental sustainability by cutting down on paper use. Having computers beside some of the patient's bedsides and within additional areas throughout wards and the like did make computer usage according to Ann easier to *"look up a policy and procedure on just about anything... ."*

Computers were described as having value especially when information about patients could be retrieved for later use. For Jane, like other participants, the value in computers was again not related to positive environmental impacts but was always about how it impacted (positively and negatively) on direct patient care. This participant valued computers when she required information on *"...National Drug Statistics..."* to which she stressed was an extremely important asset to have access to in her line of work.

Although computers have been identified as being cost effective and are energy efficient aids in the reduction of a health organisation's carbon footprint (WHO & HCWH, 2009), some participants discussed how nurses still wrote information down on pieces of paper. Brenda explained that they were *"...just extraneous paper...or handover sheets... ."* This was not necessarily a concern for them but the new manner in which the paper was disposed of was, especially in terms of patient confidentiality a concept directly related to nurses practice standards.

Sub-theme: **The ethics of maintaining patient confidentiality**

The manner of disposal of the participants' work notes, often on scraps of paper, at the end of their shift was described with mixed feelings. Some participants were not fully aware of the exact procedures in place in their facilities with regard to recycling of confidential information. This led to

concerns about professional ethical practice and the notion of recycling their patient notes and whether or not confidentiality was maintained Figure 19.

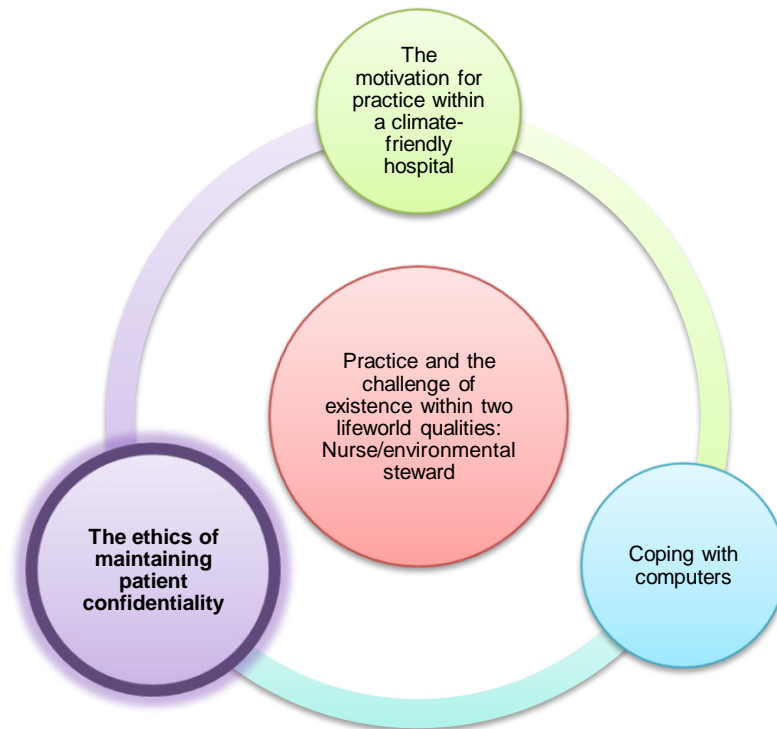


Figure 19. Sub-theme: The ethics of maintaining patient confidentiality

A number of participants verbalised that although they did not write any specific identifiable patient details on their 'scrap' paper they still harboured concerns about the unfamiliar practice of placing confidential material into a cardboard box that was taken away to who knows where for recycling. Sarah for instance contended that she had ...*"some concerns..."* that if she placed *"confidential stuff in there (cardboard box) about our patients, what happens to it?"* Ann elucidated that her concerns were centred mainly on the implications of incorrect disposal methods from a professional ethical point of view:

It makes me then consider you know confidentiality... and where that piece of paper might end up. Or you know if I accidentally dropped it ...that would have big implications for me...that would be (pause) thought of as

a critical incident if that piece of paper with client's names and details ended up in the wrong place (Ann).

Not all hospitals had the space in which to place large containers that would hold a lot of confidential paper. Hannah found this to be true at her place of work and described what it was like for her and her colleagues when the small recycling bin was full:

The bin was very small and it could get full very quickly and you would be responsible for emptying the bin...it's a bit of an inconvenience...So I think that a lot of people just took it home, or didn't dispose of it properly, or forgot about it, left it on the counter or chucked it into a normal bin. I think that happened a lot (Hannah).

Hannah described being annoyed and frustrated at the fact that she had to relinquish her lifeworld quality as a nurse whose responsibility and priority was to provide direct patient care to that of a "recycler." Emptying recycling containers was considered a non-nursing duty and as a result of this additional workload which actually took them away from direct patient care some participants were not as engaged in the implementation as others, although all were in favour of this climate-friendly initiative. Jane and Christine turned their concerns to the personnel that came to collect the container from their wards and how ethical they were. Jane elucidated:

Well I do question it, I definitely question it...I've definitely looked at the person coming to collect and thinking, I hope this person is as ethical as I am, but I don't, I haven't really discussed it because I would expect them to be, it's a fleeting thought that (Jane).

Christine suggested, *"In terms of the person that takes them away, I guess they probably be trained to not look at them."*

The motivation for practice in a climate-friendly hospital, Coping with computers and **The ethics of maintaining patient confidentiality** were the sub-themes that informed the theme titled **Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward.**

Participants mostly spoke of climate-friendly implementations in terms of actions that were familiar to them as they related to patient care. In other words, although considered part of climate-friendly hospital initiatives, the actions undertaken were to benefit their patients rather than that of the environment.

Computers were one example and were described as being both beneficial for obtaining patient results yet frustrating when trying to retrieve information after a participant had been away from work for a period of time. The disposal of nursing notes on scraps of paper also led to concerns related to professional ethics and correct recycling procedures that also added to non-nursing duties which again took them away from direct patient care.

Despite elements of mixed feelings and their lack of knowledge, environmentally sustainable implementations were undertaken within the work lifeworld of the participants. During the interviews participants spoke of the need to prove that the act of environmental sustainability was not a solitary one (as often felt by some) but rather an act that others too were also participating in. Participants described their environmentally sustainable acts with a sense that they needed to belong to someone or something. In other words they '*needed an identity*' that could unite them with who they were in respect to their space within a climate-friendly hospital.

Theme: The need to belong-encompassing a collective ownership of a climate-friendly hospital

The need to belong - encompassing a collective ownership of a climate-friendly hospital as illustrated in Figure 20 is the last theme to be discussed.

The two sub-themes that inform this theme include: **The language used to portray the need to belong** and **The challenge of people and place**.

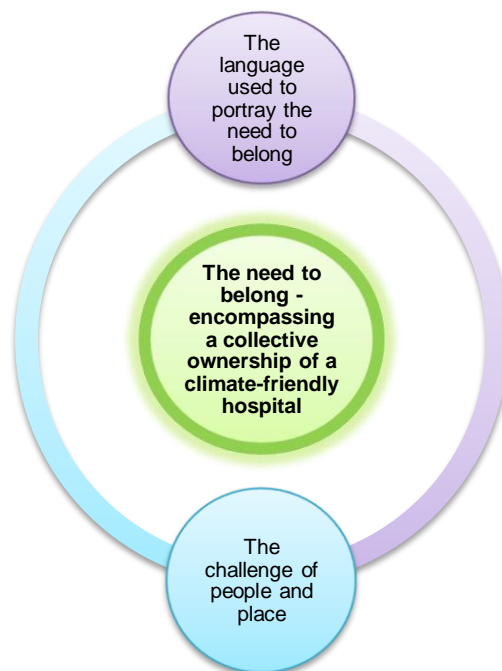


Figure 20. Theme: The need to belong - encompassing a collective ownership of a climate-friendly hospital

Participants described that they often struggled with the identity of their organisation being climate-friendly. Often participants would verbalise that they didn't recognise that what was being implemented in practice in terms of key elements of a climate-friendly hospital was actually contributing to their organisation's attempt to mitigate its carbon footprint. The lack of knowledge and education that was described as being paramount for any person working in a climate-friendly hospital was also interpreted as being a stumbling block to the success of progression for the objectives of such an organisation. Thus

relationships between participants and their organisation were at a level whereby any inkling of collective ownership of their climate-friendly hospital was unheard of.

Due to these feelings of perceived exclusion, participants when being interviewed used language to demonstrate their desire to belong to a team. Words such as 'I' or 'the' were seldom used whilst words such as 'we' were often applied. The use of language illustrates the identity the participants wanted, in order to show that there was some sense of belonging. Apart from one participant, the majority of participants did not express anything about being included in how a climate-friendly hospital could implement their key elements into nursing practice. Once again this feeling of exclusion saw the participants search for words that would give them an identity within the space of a climate-friendly hospital.

Sub theme: **The language used to portray the need to belong**

Traditionally even though RNs work autonomously they are also very much part of a team. This notion of teamwork or belongingness reverberated throughout the individual discussions between the researcher and the RN participants. All participants expressed their experiences of working in a climate-friendly hospital through language that was suggestive of needing to belong to others (people) or to a place such as a climate-friendly hospital Figure 21.

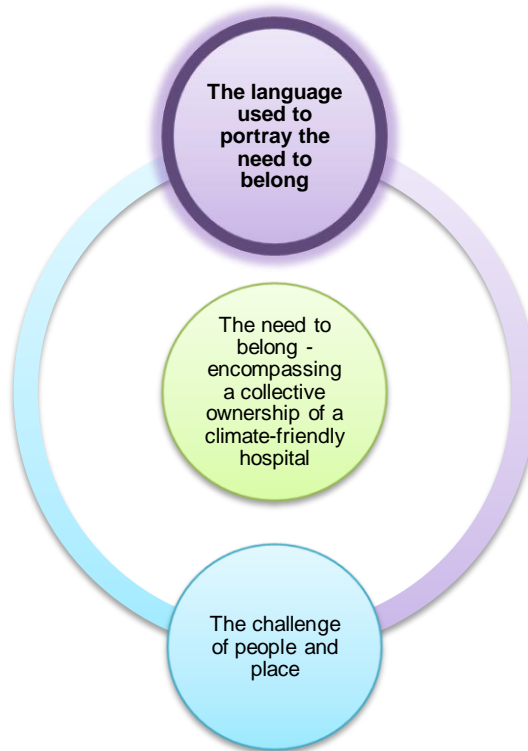


Figure 21. Sub-theme: Language used to portray the need to belong

Positive relationships can enhance a sense of belonging and as the majority of participants described that climate-friendly hospitals were 'a good initiative,' the majority were keen to belong to one. Examples of language that illustrate the need to belong were offered by the following participants when they used the collective term, that is, the word 'we.'

So I guess recycling is something we do...we recycle all of our glass bottles... (Sarah).

So we've gone from being really mindful about what we use to overusing paper you know, and I think not just myself, but you know my colleagues recognise that we've just gone and increased the amount of paper we're using... (Ann).

...we're all environmentally conscious about that (hand washing)...but it didn't take much encouragement because we're all a bit aware of... (Jane).

...well we have...most of our equipment is electricity powered so we have them all plugged into the wall, but if we're not using the switches, we make sure we switch them off (Christine).

...Ok, well, currently we're implementing recycle bins in all areas...and we're working out what can and cannot be recycled... (Helen).

The words 'our' and 'my' was suggestive of the need to belong to a specific place such as a ward, unit or a department. This desire was also extended to the need to belong to their organisation and was often verbalised as:

I'm not so sure in, in our area, you know whether it was to become more climate-friendly (Brenda).

...probably a little bit disappointed with how my hospital, probably more specifically my unit... (Laura).

...but in our, in my hospital, we only have one section...So that's where we retrieve our bloods, all our chest x-rays... (Hannah).

...but I actually feel proud of our hospital for taking those steps (environmental initiatives)... (Linda).

Stephanie inferred her need to belong to others by stating that it was not only she that was implementing key elements of a climate-friendly hospital.

Stephanie sounded really empowered when she spoke of carrying out such implementations that were part of a team effort, *"It's just a general consensus amongst the staff that we do it (recycle)."*

Identification of performing the same climate-friendly implementations such as recycling brought into play the use of language identified above such as 'we.'

Through acting in this manner participants were able to find a relational aspect of a 'sense of belonging' within the lived space of a climate-friendly hospital.

The notion of organisations making the transition from traditional to climate-friendliness was supported by the participants, even though awareness of these

implementations was superficial. As discussed earlier in this section institutional transition did not always have a smooth path. The bumpy trail often led to participants describing their relationship with their organisations as challenging. This is illustrated in the next sub-theme: **The challenge of people and place**. See Figure 22.

Sub-theme: **The challenge of people and place**

The relationship between participants and their organisation was expressed earlier as being important for the transition to a climate-friendly hospital to succeed.



Figure 22. Sub-theme: The challenge of people and place

Despite the perceived lack of knowledge, many participants, through their actual lived experience of working in their existing climate-friendly hospital, were able to offer an opinion regarding the significance of their place of work moving to sustainable practices.

Ann for instance stated how she thought that *"...in this day and age the hospitals have had to move with the times...not just caring for the people that we see, but the environment in which we live and work in is really important."*

Christine verbalised that climate-friendly hospitals were a *"...very good initiative to have started because hospitals are one of the biggest users of resources."*

Jane believed that *"...most hospitals are big organisations so they have a responsibility to the community to take up practices that improve the environment if possible."* Laura elucidated that environmental sustainability was *"...a really important aspect of the function of any hospital..."* but climate-friendly initiatives were described by Hannah as being something that her hospital did *"... very poorly,"* and that it was something that they *...could do better in.*

Relationships in regards to environmentally sustainable implementations were described as challenging due to the lack of knowledge of what was actually going on. Participants like Laura stipulated that she would *"...love to know what actually the hospital puts in place as far as being climate-friendly."* Participants often described strategies that would help the hospital progress in certain areas. Ideas that participants had were not readily conveyed to the organisation, as some participants felt that the relationship between themselves and the organisation was such that their recommendations would not be accepted or valued by management. Strategies such as expanding the size of trolleys to accommodate various recycling bags, placing sensor lights in certain rooms that were not consistently in use during the night and that automatically turned off, or advertising:

In terms of our stock trolley...if we had a better layout of our trolley that would really help us...You don't need to move away from your patient then, you can just do it all there (recycling) and it wouldn't take up much room...I don't know 50cm or something on, attached (Hannah).

If we had the sensor lights, lights on sensors...they pick up movement and the light goes on, and if there's nobody's moved in the room for a few minutes it turns off. So those rooms would have been good... (Sarah).

...I just think that the hospital itself could've, could do more in regards to advertising, you know what we do being part of a, a climate-friendly hospital (Brenda).

Some participants such as Jane displayed an interest in knowing if sustainable implementations were working or whether they were actually costing the organisation more to be climate-friendly. *"I'd actually like to know the cost difference between a com, computer and writing things on paper, but I guess it's gotta be the computer's cheaper maybe, I don't know" (Jane).*

This relational challenge resulted from participants saying that they had no feedback from the organisation on the value of environmental sustainable implementations. They felt that this left them unaware of reasons why they were doing things. Linda believed that management thought carefully prior to making changes but that it was important for people to understand that change was going to make a difference, she emphasised that, *"...improving the way we do things sometimes means a change...I think most people feel more positive if they can make a difference...then they feel more enthusiastic about implementing the changes."*

The third theme: **The need to belong - encompassing a collective ownership of a climate-friendly hospital** was informed by two sub-themes: **The language used to portray the need to belong** and **The challenge of**

people and place. Through the process of data analysis the desire for relationships emerged which was illustrated by the manner in which the participants utilised the words we, our and my.

Relationships between the majority of the participants and their organisations became challenging when participants perceived that very little information was distributed. This led to the participants often feeling undervalued, disenchanted, frustrated, annoyed and on occasions disempowered as they felt the relationship was not at a level whereby they could suggest any strategies of their own. Despite the fact that the majority of participants were supportive of climate-friendly implementations at work, the perceived lack of goodwill between some participants and their organisation left the sense of belonging strained. This meant that participants were not really able to form an identity that would resonate with them as being an employee of a climate-friendly hospital.

Summary

Phase two used a hermeneutic phenomenological analytical process to present to the reader findings from ten participants regarding their understanding of 'what it means for a RN to work in a climate-friendly hospital.' From the analytical process the essence of meaning which was the need to "*establish an identity*" was informed by three themes: **Awareness of self within the social environment of a climate-friendly hospital, Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward and The need to belong - encompassing a collective ownership of a climate-friendly hospital.** These themes and sub-themes were illustrated using the

participant's own words and phrases as well as the interpretive efforts of myself as researcher. The study found that although the participants are accepting of organisational change, and in fact implement some of the climate mitigating strategies brought about by such change, they have not yet been able to fully assimilate a sense of belonging to a climate-friendly hospital.

Chapter Five presents a discussion of the Findings Chapter with an exploration of the 'essence of meaning' within the context of existing literature.

CHAPTER FIVE

DISCUSSION

Introduction

The research presented in this thesis utilised the hermeneutic phenomenological philosophy of Heidegger. This philosophical approach allowed the researcher to enable ten RN participants to speak freely about their work lifeworld within a climate-friendly hospital. van Manen (1990, p. 180) speaks on the notion of Heidegger's understanding of hermeneutics as *"...the power to grasp one's possibilities for being in the world in certain ways."*

Finlay (2012, p. 188) asserts that phenomenologists suggest that reflection of a person's experience can be guided by referring to their *"universal lifeworld elements"* and mentions van Manen's fundamental existentials in order to achieve this. As previously discussed earlier in this thesis, van Manen (1990) posits certain fundamental existentials that would normally permeate a human being's lifeworld: lived space, lived body, lived time and lived other. These fundamental existentials are infused into the work lifeworld of the ten participants in this research and as illustrated in the previous chapter form part of the three main themes and their sub-themes of this study:

- **Awareness of self within the social environment of a climate-friendly hospital;**
- **Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward; and**
- **The need to belong-encompassing a collective ownership of a climate-friendly hospital.**

This chapter will commence by assisting the reader to firstly understand the significance of identifying self within our varying lifeworld qualities and how these individual lifeworld qualities are assigned to us within our diverse social constructs. In other words, a nurse can be identified by the uniform that they wear, their manner, conduct and by a certain set of expectations (Walker, Payne, Jarrett, & Ley, 2012) that derived by a synthesis of the aforementioned themes. The explication of the essence of meaning is enhanced using the 'Identity Process Theory' (IPT). Breakwell (2010) refers to IPT as Assimilation-Accommodation and Evaluation. Sneed and Whitbourne (2003) had earlier suggested IPT to be a three-part process; 1) Identity Assimilation (maintaining self-consistency), 2) Identity Accommodation (making changes in the self) and 3) Identity Balance (maintaining a sense of self, but changing when necessary). These processes are described in greater detail later in this chapter when discussing the essence of meaning.

Discovering who we are

Aspers (2010, p. 217) states *"the ontological question Heidegger argues must start with who we are."* Being-for-self therefore commences with being able to identify with the many lifeworld qualities we possess. van Manen (1990, p. 101) speaks of the intricate complexity of lifeworlds and the varying *"experiential lifeworld qualities"* such as those of a teacher, parent or researcher. As a student of hermeneutic phenomenology my experiential lifeworld qualities differed as I moved from home and work lifeworld to student lifeworld.

Most of my experiential qualities can be identified as my conscious self. I identify my home and work lifeworld as possessing such qualities that pertain to

being a wife, mother, daughter, grandmother, nurse and environmental steward and so forth. Being in my student lifeworld, however, provides me with such qualities that aid me to develop as a writer and researcher. Although this chapter is not about self, in Chapter Three- Research Design I mention that in a hermeneutic study the researcher's role is as important as the participants through their foreknowledge (McConnell-Henry et al., 2009b) and through their own lifeworld experiences (Marshall & Rossman, 2011). In order to do justice to the experiential lifeworld of the participants I first needed to establish who I was. I needed to understand self as being-in-the-world of a student.

My lifeworld as a student enabled me to become engulfed in an inner sanctum where the qualities of a novice researcher came to the fore. Moving between lifeworld qualities from clinician to novice researcher have been present throughout the whole journey of this study. However, Being-in-the-world of my sub-conscious (inner sanctum) was challenging. For the participants of this study the ontological nature was not only being able to identify themselves as a nurse within the space of a climate-friendly hospital, the participants also needed to '*establish an identity*,' that when combined with their lifeworld quality of being a nurse would also help them to identify the qualities as a steward of the environment.

Slette purports "*the ultimate application of stewardship is the holistic approach of being stewards of the earth, its environment and inhabitants...Nursing's role of disease prevention must include being stewards of our earth by being advocates for reducing environmental pollution*" (Slette, 1999, p. 3) for which a climate-friendly hospital has been noted to do.

Discovering the essence of meaning when two lifeworld qualities become one: Nurse/environmental steward

The essence of meaning was informed by the three themes that have previously been described. The participants of this study encountered challenges within their work lifeworld that required them to undertake activities that would incorporate two lifeworld qualities. van Manen (1990) posits the separation of these qualities; that of a nurse and that of an environmental steward. It is in fact the combination and balance of these two lifeworld qualities, with very little in-depth knowledge of the role of an environmental steward that has caused participants to identify with one (being a nurse) rather than the other (being an environmental steward).

Within a climate-friendly hospital the role of an environmental steward is incorporated into the role of a nurse as explained earlier by Slette (1999). However, with the role of an environmental steward not being clearly identifiable for participants, they really only identified as a nurse with the motivation for activities resulting from nursing actions that were familiar to them. Environmental stewardship came quite a distant second to this irrespective of what practice was being carried out.

All participants verbalised that they supported the fact that their hospital was working toward implementing environmental stewardship strategies. However, they also stipulated that they required more information on what exactly their hospital was doing so that the hospital's philosophy on environmental sustainability could be understood. In order for a climate-friendly hospital to become meaningful and familiar to them in the same manner that nursing is, the

participants needed to *'establish an identity'* of an environmental steward within the social environment of their organisation. See Figure 23.

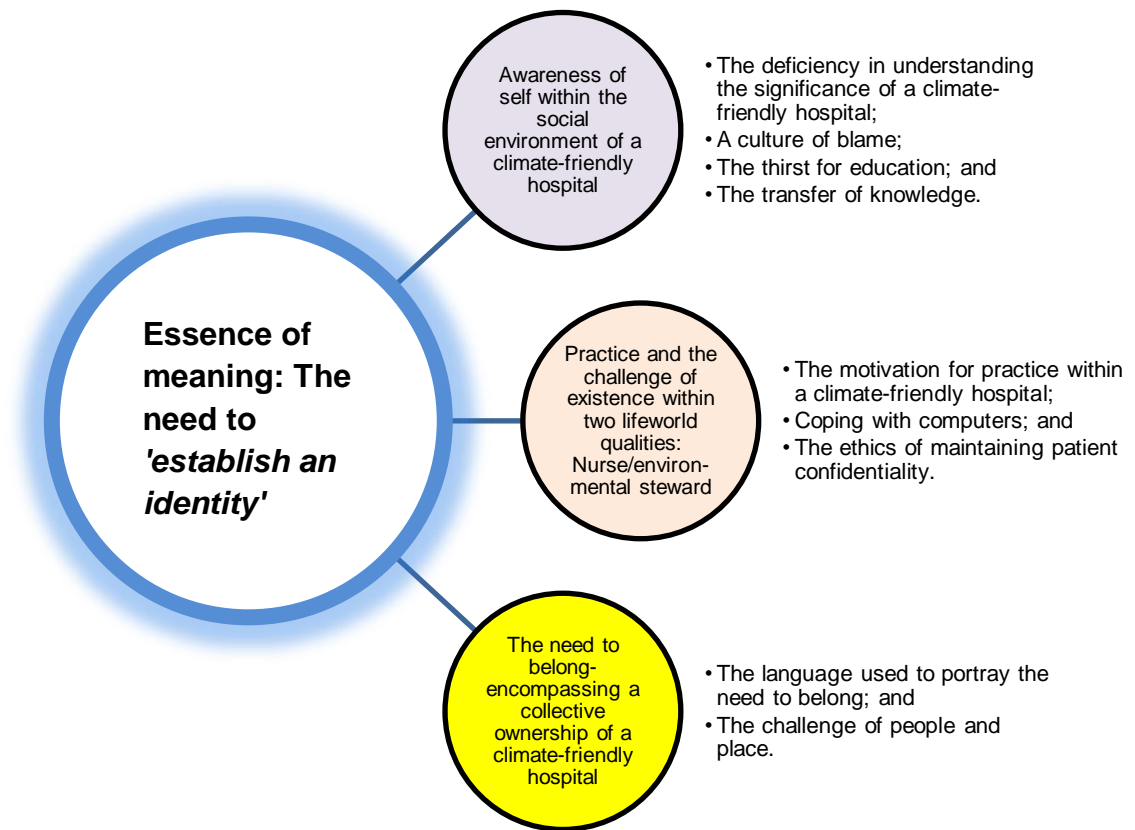


Figure 23. Essence of meaning: The need to 'establish an identity'

Establishing identity of self within the social construct of a climate-friendly hospital

Establishing an identity of self within the social construct is significant as it demonstrates who we are; it provides us with a sense of belonging to oneself, people and place (McLeod, 2008). Sneed and Whitbourne (2003) liken identity to a compass that navigates a person throughout the course of their life whilst Bakar (2013, p. 318) proposes that *"Identity is a must. Every individual in this world has unique identity based on their unique personality trait."* As alluded to earlier, but more fully described here, in their paper on 'Identity processing and self-consciousness in middle and later adulthood' Sneed and Whitbourne

(2003) discuss three processes that can be identified within Identity Process Theory (IPT): Identity assimilation, Identity accommodation and Identity balance.

Identity Assimilation

According to Sneed and Whitbourne (2003) individuals that excessively associate with identity assimilation, do not readily acknowledge their weaknesses or deficiencies. Such individuals appear to hold themselves in high regard, however, below their facade feelings of insecurity lurk. Although ascribing extensively to identity assimilation as a nurse the participants in this research were also able to recognise their lack of in-depth understanding about their hospital being climate-friendly. Participants did not entirely see this as a weakness (holding themselves in high 'nursing' regard) in that at times they blamed others for this knowledge deficit and also because their main sense of identity assimilation was to that of - nurse. However, lack of security filtered through during the interviews as their lack of knowledge about environmental stewardship intensified on occasions when they tried to describe their experiences of working within a climate-friendly hospital.

Identity Accommodation

Sneed and Whitbourne (2003) assert that an individual's identity changes as a result of their experiences. The authors suggest that those who associate themselves with identity accommodation to excess can become readily influenced as their own identity becomes unstable. Although the participants believed their identities which they ascribed to being a nurse only were not changing, what they did not clearly recognise was the fact that their identities

were changing to accommodate the implementation requirements of their hospital. Therefore, their exclusive lifeworld identity of a nurse was slowly changing (becoming unstable) as they were incorporating the lifeworld qualities through acts of environmental sustainability at work of an environmental steward.

Instability of identification within nursing has dogged the profession for many years (Willetts & Clarke, 2014). The authors contend that nurses become challenged when having to describe their work to other professions (Willetts & Clarke, 2014). Part of this issue according to Willetts and Clarke (2014) is due to an inadequate understanding of being able to recognise the diversity of contexts in which nursing practice takes place. As if that was not challenging enough organisations such as WHO and HCWH (2009) are now encouraging health professionals such as the participants of this study to encompass yet another role into their profession, one that will also identify them as a steward of the environment.

Identity Balance

Sneed and Whitbourne (2003) postulate that individuals change when there is a challenge to identity, however, the change is usually favourable and not always questionable to the point where an individual's identity may remain consistent. The participants of this study remained identity consistent within the realms of nursing. On occasion their identities became challenged but were not always questioned as the participants found it easier to conform to the changes, even though they did not completely understand the significance of the changes.

Breakwell (2010) developed IPT through her studies on individuals in response to their threatened identity. In many respects the participants in this research are having their 'nursing' identity threatened as they have to undertake environmentally sustainable implementations which are imposed on them by management and for reasons which they do not fully understand. Breakwell (2010) contends that IPT is regulated by accommodation-assimilation and evaluation.

Breakwell (2010) asserts that accommodation and assimilation are two parts of a whole process referring to assimilation as new components that are absorbed into an identity structure, whilst accommodation refers to the adjustment of an existing structure to incorporate the new component. Evaluation is assigned to *the "allocation of meaning and value/affect to identity contents, new and old"* (Breakwell, 2010, p. 64). The processes of IPT then manifested itself within the experiences of the ten individual participants as they describe 'what it means for a RN to work in a climate-friendly hospital.'

Uncovering the experiential lifeworld of the participants

Theme: Awareness of self within the social environment of a climate-friendly hospital

*"Truth is not something outside to be discovered,
it is something inside to be realized"* (Osho, 2015).

The quote by Osho resonated with the researcher as it reiterated that the word 'truth' is not discovered from outside but is internalised within ourselves as being aware of honesty.



Figure 24. Self-awareness for entrepreneurs (McKinney, n.d.)

Participants identified 'self' Figure 24 as one who enacts their everyday work lifeworld as a nurse within the space of a 'traditional' hospital. What was a challenge for them was to identify with Being-in-the-world of a climate-friendly hospital, its meaning, value and significance to self and to be able to identify the role that being an environmental steward had in connection to direct patient care.

Participants described that there were certain changes being made within their organisation. These changes were expressed in terms of *"patient comfort"* rather than actions carried out for the purposes of environmental sustainability. Participants described changes in a manner of familiarity to them as that of a nurse and nursing, and as such, their identity assimilation which was to nursing was able to be maintained.

Maintaining self-consistency meant that the participants just like Sarah did not readily identify with the title climate-friendly hospital: *"...until I thought you were doing this research project, I hadn't really thought about it (climate-friendly hospital) at all."* Helen's voice sounded less than confident as she tried to

provide a summary of her hospital through her experiences, stating that the hospital in which she worked was not *"quite as climate-friendly at the moment,"* yet the concept was *"...very important..."* to her *"...that climate control and things like that..."* were being addressed.

Articulating awareness therefore requires an 'obviousness' about the people and processes that are to be engaged (Davies, 2000). Prior to being aware of others and processes the need to discover and become aware of self is essential. Self-awareness as described by Jack and Smith (2007, p. 48) is the involvement of thought, sensation and action, emphasising that the *"discovery of self is an ongoing process."*

Jack and Smith (2007) contend that as awareness is attributed to a conscious process we need to know ourselves before we can identify with the strengths we possess or can relate to others through acceptance or non-acceptance of what is actually being implemented. The participants needed to become aware and embrace their identity of being in the lifeworld of a climate-friendly hospital before they could fully understand the significance of accepting or not accepting the processes of implementing environmentally sustainable elements such as: energy efficiency, green building design, alternative energy generation, transportation, food, waste and water. As the participants had not been able to clearly identify themselves within a climate-friendly hospital as such, this meant the process of identification in respect of environmental stewardship was ongoing.

Awareness according to Graziano (2014) is more than a psychological state of responsiveness as it includes other attributions such as emotions, motivations

and intentions. Graziano (2014) provides an example in the way of a person's attribution of awareness to a snake. The author states that for the person to be able to attribute fear or to be motivated into a fleeing response or for an intentional capture of the snake, the person needs to be aware of the snake through their attentional processes (Graziano, 2014).

The participants' attribution of applying environmental stewardship into their daily practices resulted in partial compliance to the various implementations of a climate-friendly hospital. In other words the participant's awareness of a climate-friendly hospital (the snake) and the motivation of the role of environmental stewardship could be described as being superficial.

The shallow understanding or lack of awareness of the significance of environmentally sustainable implementations led some of the participants to describe some of the changes as being *"quite subtle"* and *"unchallenging"* with *"minimal impacts."* Others described their experiences as being *"stressful"* to the point of expressing *"very little confidence"* in the success of carrying out certain implementations. Although situational awareness is a desirable attribute in nursing it is not a simple process to become aware and being self-aware is a dynamic concept as the following discussion of two research studies illustrates.

Awareness of implementations of key elements of a climate-friendly hospital together with their benefits can be regarded as key components of informed decision-making. Stubbings, Chaboyer, and McMurray (2012) conducted an integrative review of the literature from the years between 1965-2011 on situation awareness, which according to Stubbings et al. (2012, p. 1444) *"is the global term for the level of awareness and the dynamic understanding that a*

practitioner has of a situation." The study was related to practice and safe outcomes for patients. The authors emphasised that situation awareness can be obstructed by various distractions such as multi-tasking, tiredness and time constraints to name a few (Stubbings et al., 2012). The research recommended further work within the area of situation awareness and decision making skills to enhance patient safety.

Hannah was worried about patient safety in terms of confidentiality when she described a typical situation whereby the ability to make the correct decision for the disposal of nursing notes on scrap paper after a busy shift was challenging for her. Hannah described that when nurses were short of time prior to the end of a shift and were faced with other pressing issues the correct procedure for the disposal of scrap paper often did not occur *"...I think a lot of people just took it (scrap paper) home...left it on the counter."* Hannah knew that an incorrect process regarding discarding scrap paper that had patient information sometimes occurred, and as such, demonstrated an awareness of that particular situation. Awareness is one thing, action is another.

Timmins, McCabe, and McSherry (2012) conducted a study on contemporary research awareness of nurses in the Republic of Ireland. Two hundred and thirty-four nurses completed the Research Awareness Questionnaire (RAQ) containing 31 items. The largest cohort of participants was RNs (65.6%), with 20 percent working as clinical nurse managers. Results found a high percentage of participants (92.5%) believed that changes in practice were driven by evidence-based information. However, despite believing that nursing practice was evidenced-based, the nurse participants indicated that they

continue to face many challenges to collect evidence through research such as time constraints, lack of support, knowledge deficits and lack of confidence (Timmins et al., 2012). A recommendation that managers should be skilled in clinical areas, undertake research awareness training and increase awareness of evidence-based practices (Timmins et al., 2012) was suggested.

Varaei, Salsali, and Cheraghi (2013) emphasise the importance of evidence-based practice as an indicator of good quality patient care. Evidence-based information on the significance of nurses implementing climate-friendly elements within their practice remains scant. As identified in Chapter Four - Findings this scarcity of information has been described by some participants as producing very little confidence with regard to environmentally sustainable implementations: Brenda expressed her concerns as being "*...not confident that that (recycling) all works very well*" within her area of practice.

Some of the participants described that for confidence to be instilled in them with regard to environmentally sustainable practices, clinical nurse managers should be able to demonstrate an awareness and understanding of the value of incorporating such practices into healthcare organisations. One example of demonstrating awareness is to develop an organisational culture surrounding environmental sustainability. The Health Research and Educational Trust (2014) in Chicago provide six steps to creating a culture of change, 1) make the commitment, 2) create a structure for supporting environmental sustainability, 3) support and finance environmental sustainability, 4) set goals and measure, report and evaluate change, 5) celebrate and share successes and 6) continue to assess and identify new opportunities.

Hannah elucidated that she would like to see the manager in her unit skilled within the areas of environmental sustainability and clinical practice, *"so I think there almost needs to be an environmental nurse coordinator or somebody that has that role that can really get involved."* Hannah identified this type of manager as a necessity for enhancing awareness of what was going on with regard to environmental stewardship in her area. Managerial awareness and leadership were also thought to add credibility about the significance for environmentally sustainable implementations and the role that nurses should play.

As Brenda previously stated, confidence within the environmental sustainable processes within her particular organisation was questionable. Participants of this study experienced challenges to their identity as was expressed previously by Brenda, however, they were ready to take up the challenge and accommodate their organisation through trying to make changes to the self when necessary (Identity Balance) providing they had the essential help, time and guidance from clinical nurse managers.

Roy and Ghose (1997) carried out a study on the internal and external environments of an Indian hospital and the awareness of commitment to that hospital by physicians and nurses. Data was gathered using questionnaires regarding both the internal and external environments of hospitals. Results revealed that physicians were mostly interested in the external environment, whilst nurses were more concerned about being- in- the-space of the internal environment of their organisation (Roy & Ghose, 1997).

This research has focused on the participants' bodily existence within the internal space of a climate-friendly hospital. Roy and Ghose (1997) reported about nurses' description of their internal environment. For these authors the internal environment referred to goals, processes, strengths and limitations. Nurses can be seen as having an interest in what their role includes, what the other areas of the hospital are doing and how these activities are related to the overall goal of the hospital (Roy & Ghose, 1997). It is these areas of interest that enable nurses like the participants of this study to maintain their self-consistency (identity assimilation) and commitment to their hospital.

Within an environmentally sustainable space (climate-friendly hospital) this can become challenging when nurses are required to engage in different practices that they are unsure will work and that they cannot see will be of benefit to their patients. The participants in this study maintained their sense of self (identity assimilation) but were trying to change their practice to accommodate the new practices (identity accommodation) when necessary (identity balance).

Maintaining this identity balance for some participants was testing especially when the goals of the hospital in terms of being climate-friendly were not clearly identified and the need to make changes to self to incorporate the identity of an environmental steward remained blurred. Linda upheld her self-consistency (identity assimilation) and commitment to her hospital by stating that nurses *"...are not going to know everything that's happening..."* in respect to environmental sustainability. Stephanie felt that her experiences working in a birthing suite within a climate-friendly hospital was *"...perhaps a little different to*

general nurses working in ward environments." Ann tried to make sense of being in a climate-friendly hospital by verbalising that there had to be:

a better way to do something about how much paper that we, we do use...and just knowing... how many trees it takes to make paper...It just makes you think twice about using paper and thinking you know, where's this paper going to end up (Ann).

Jane struggled with her commitment of being in a climate-friendly environment and could only express her experiences of making any changes to incorporate environmentally sustainable implementations into her nursing practice (Identity accommodation) by looking at how these implementations were of value and could benefit her patients in the future, *"Well I probably think the clients would benefit in the long run, but I'm not actually sure, I don't actually know right now."*

Maintaining the processes of identity assimilation, identity accommodation and identity balance within the space of a climate-friendly environment was easier for the majority of participants when they were knowledgeable about an environmentally sustainable implementation. One of the most identified practices that the participants were aware of was that of waste. The last example regarding awareness relates to biomedical waste and the practice of waste management amongst healthcare workers.

Waste, as described in Chapter Two - Background and Context, is a key element of a climate-friendly hospital. When confronted with the necessity to incorporate a waste management procedure into their daily practices the majority of participants were mostly able to maintain their self-consistency (identity assimilation) yet make changes to self (identity accommodation) to achieve an identity balance. Most of the participants eagerly described the

various forms of waste they encountered daily. Conversations flowed easily as the majority of participants spoke of the familiarity of the disposal of paper, cans, bottles and medications right through to the disposal of waste water left over from the plastering of a patient's limb. There were occasions however where participants felt disinclined to discard their rubbish into different recycling bins correctly.

Breakwell (2010) elucidates that changes in an individual's identity are normally purposive. Thus, when participants described their resistance to accommodate what the hospital was implementing due to their workload and time constraints, this meant that the participants were exercising their freedom of choice to remain self-consistent as a nurse (identity assimilation) and not one as an environmental steward. The act of resistance to placing paper in the shredding bin saw participants like Jane adding that she simply got *"...too busy to think about this stuff (recycling) which is not ideal."*

Patan and Mathur (2015, p. 7) use the 1998 Government of India's definition of biomedical waste in their research which is *"Any waste generated during the process of diagnosis and treatment or immunization of human beings... ."*

Although such actions as described above by Jane were seen to occur, conversely, there were participants like Christine that welcomed the change in identity going the extra yard to describe with excitement the means of biomedical disposal at her hospital:

...we have recycling bins around the place so that we can use those and if there are some products that can only be used once or so, I believe there's a bin that goes to RSPCA (Royal Society for the prevention of Cruelty to Animals) so that they can use the tools again. Yeah! Once

only for us and maybe like a packet of dressings that have been opened but not actually used, they'll go into the RSPCA bin (Christine).

Christine was able to assign a value to waste disposal with how the hospital provided the RSPCA with tools and unused dressings that could not be used again in her nursing practice. By providing beneficial tools and various unused dressings to a non-profit organisation Christine did not feel so bad about discarding products that would otherwise be thrown away needlessly. The feeling of self-worth was something that she felt was brought about by the fact that she was proud that her hospital was doing something to help sick and injured animals. She was 'aware' of a purpose.

Being aware of the benefits of actions may help to put into perspective what an environmentally sustainable organisation such as a climate-friendly hospital is all about. Castellani (2015) claims that the reuse of a product can not only benefit the environment but may also be profitable to businesses that wish to sell on their unused or used only once products at a cheaper rate.

According to Joseph et al. (2015) for the disposal of biomedical waste to become successful in terms of meeting standards for environmental stewardship as required within a climate-friendly hospital certain steps by the organisation need to be implemented. The authors conducted cross-sectional audits between September 2009 and January 2012 in an Indian tertiary teaching hospital.

Audits considered the following: (a) staff awareness on biomedical waste segregation, (b) the practice of waste segregation, (c) change in practice post training sessions and (d) awareness post regular training sessions. The audit

revealed that in order for there to be optimal compliance of biomedical waste segregation, healthcare workers require strict supervision, daily surveillance with frequent audits and inspections in order that bio-medical rules are complied with. It could be surmised that there was a lack of compliance probably related to a lack of awareness and deficiency of knowledge.

Sub-theme: The deficiency of knowledge in understanding the significance of a climate-friendly hospital

As previously alluded to, the participants of this study attributed their lack of awareness of self within the space of a climate-friendly hospital along with the characteristics of such an organisation to a knowledge deficit. **The deficiency of knowledge in understanding the significance of a climate-friendly hospital** is a sub-theme of **Awareness of self within the social environment of a climate-friendly hospital**. From the comprehensive analytical process participants were found to have a knowledge deficit in respect to their hospital being a climate-friendly organisation. Gould (2001) emphasises that the possession of a unique body of knowledge is a characteristic of the nursing profession. Although the participants in this study possessed a unique body of knowledge that would identify their existence as a nurse and maintain that identity assimilation, it became apparent that a deficit in knowledge existed when they were required to describe the significance of their organisation as being one of climate-friendly.

Knowledge as a concept, and also the acquisition of knowledge, has been the subject of many nursing studies. Table 37 provides some examples where knowledge has been the subject of research.

Table 26
Incorporating knowledge into nursing studies

Study	Authors
Nurses' knowledge and attitudes regarding potential impacts of climate change on public health in central of China.	(Xiao, Fan, Deng, Li, & Yan 2016).
Nursing Faculty's knowledge on health impacts due to climate change.	(Streich, 2014).
Public health nurses' knowledge and attitudes regarding climate change.	(Polivka, Chaudry, & Mac Crawford, 2012).
Challenges in sharing knowledge: Reflections from the perspective of an expatriate nurse in a South Sudanese hospital.	(Tjoflåt & Karlsen, 2012).

It was revealed in this study that the knowledge deficit experienced by the participants which meant that they were not fully aware and thus not able to support their organisation's quest for environmental sustainability, resulted from a break down in information sharing between the participants and their organisation. "...you don't always get to hear about it..." asserted Linda with respect to things that were happening around the hospital with environmentally sustainable implementations.

Knowledge sharing according to Cole (2016) enhances a culture of learning that progresses an individual's skills and performance including that of the individual's organisation. Dennehy, Morgan, and Winston (2003) devised a model that provides some cultural enablers that motivate individuals to share their knowledge as shown in Figure 25. The model reveals two processes that when combined, produces an organisational culture for knowledge sharing. These two processes include the following and are discussed further:

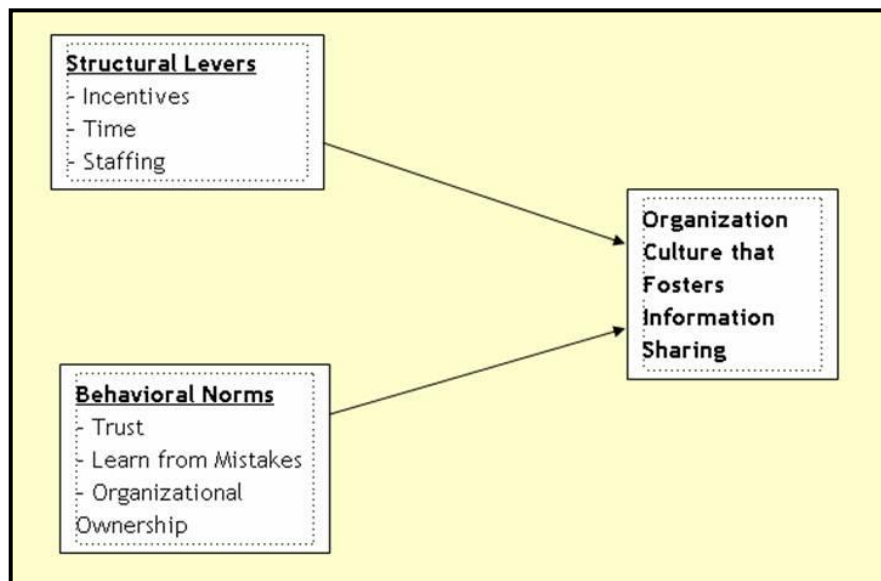


Figure 25. Model of organisational culture (Dennehy et al., 2003, p. 192)

With respect to structural levers, participants of this study did not readily mention any incentives from their specific organisation for them to carry out environmentally sustainable implementations. The majority of participants contended that they were very time poor on occasions. Incentives may have provided participants with the encouragement needed to accommodate their organisations and support them to adopt environmentally sustainable practices. Hannah strongly emphasised her position on incentives and described how the possessing of economic knowledge on waste disposal and the savings that could be produced from correct environmentally sustainable implementations may be the incentive that is required to encourage climate-friendly practices.

....lots more posters and signs and colours you know, this is how we dispose of this, this is why we dispose of this, this is the cost that incurs to our hospital; this is how much we were over budget last year. You know with money we could provide you know new nurses... You know we're always wanting more nurses because we are so tired... (Hannah).

When addressing behavioural norms some participants maintained their self-consistency within their nursing practice as they expressed a certain amount of lack of trust regarding various environmental procedures such as correct waste disposal. The findings showed that the majority of participants did not make changes to accommodate the new environmentally sustainable implementations due to what they perceived as more pressing nursing duties. Due to the breakdown of knowledge sharing from the organisation's leaders on environmentally sustainable implementations it was inevitable that organisational ownership was going to be a challenge. Analysing the interview data revealed that the participants need to maintain their self identity as a nurse was stronger than the need to make changes to the self to accommodate new practices. The participants found that the culture for sharing information on environmentally sustainable implementations and the lack of encouragement through incentives was weak.

Knowledge sharing within climate-friendly hospitals on environmental sustainability remains challenging. The struggle of incorporating such knowledge into the role of nursing appears to be due to its ambiguity (McMillan, 2014). Even when a participant was eager to share what knowledge they had on how their hospital could enhance a recycling system, for example, they felt that their ideas would not be supported. Laura expressed how she felt unvalued as she had "...discussed it (recycling) with" her "operational services officer" to no avail which made Laura feel like it still required "...a lot of prompting...to actually carry things out... ." Hannah was also eager to share her knowledge about how her organisation could increase its status as a climate-friendly hospital through advertising:

Perhaps the government would want to get on board as well... You know we're a very big hospital. We could become a forefront for environmental change, and I'm sure publicity and media could really help us in terms of doing the right thing (Hannah).

Even though some participants described their eagerness to share knowledge and to become part of their climate-friendly organisation it seemed that there were barriers to knowledge sharing. Riege (2005) contends that there are well over a dozen barriers to knowledge sharing with some of these including:

Potential organisation barriers:

- *Lack of leadership and managerial direction;*
- *Lack of transparent rewards and recognition systems; and*
- *Existing corporate culture does not provide sufficient support for sharing practices.*

Potential individual barriers:

- *General lack of time to share knowledge, and time to identify colleagues in need of specific knowledge;*
- *Low awareness and realisation of the value and benefit of possessed knowledge to others;*
- *Lack of social network; and*
- *Taking ownership of intellectual property due to fear of not receiving just recognition and accreditation from managers and colleagues. (Riege, 2005, p. 23-26)*

As Riege (2005) points out, for an organisation or business to grow, knowledge sharing activities should be integral to everyday conversations. Cole (2016) also suggests that a culture of learning is enhanced through the sharing of knowledge. When knowledge sharing was considered inadequate by participants it opened the door for **A culture of blame.**

Sub-theme: **A culture of blame**

The second sub-theme that informs the theme **Awareness of self within the social environment of a climate-friendly hospital** was **A culture of blame.**

Woodward, Lemer, and Wu (2009, p. 1291) quote Epictetus, (a philosopher of stoicism) regarding why blame is apportioned:

Ignorant people blame others for their own misfortunes; those people partially wise learn to blame themselves; the truly wise need not blame themselves or others (Epictetus).

It could be said through experiences divulged that all of the participants could relate to the above passage in one form or another. The word ignorant does not mean undignified or rude in this study but rather a person that is lacking in information. In this study ignorance lead to blame and a blame culture became evident in the findings of this study. Blaming according to O'Connor et al. (2011) may aid in the defence of a person's justification, thereby allowing that person to avoid responsibility.

The blame culture within healthcare professions is widely documented (Gorini et al., 2012; Moumtzoglou, 2010; Sprinks, 2012). Although environmentally sustainable implementations remain in an early form within the Australian context (Lewis, Moxham, & Broadbent, 2011a) most of the participants of this study, when struggling to discuss environmental sustainability issues, tended to shift the onus away from themselves onto someone or something else. By transferring blame the participants could therefore a) justify their lack of knowledge, b) justify their lack of environmental commitment to their organisation and c) justify themselves as maintaining their self-consistency as a nurse. Below are some examples of how the participants justified their actions.

Justification of lack of knowledge.

Even though some of the organisations that the participants worked in provided information for their nurses on environmentally sustainable implementations, RNs like Ann who said she could physically view solar panels on their hospital still grappled with the notion that their hospital was 'even doing anything.' This left Ann questioning where she had actually got her information from. Did she actually get information from her organisation or was it derived from other sources that she had seen or read elsewhere? *"I think when once they put up solar panels in the car park there may have been a bit of advertising around the hospital that they were, you know, reducing the carbon footprint."*

However, because Ann knew very little about where to access such information about her organisation being environmentally sustainable, she convinced herself that what little knowledge she did have must have come from the organisation in which she worked, *"So I think that's where I got that (information) from... because even though you think about it...there must be someone sitting somewhere doing this work and implementing this stuff..."* (Ann).

From blaming the organisation solely for not providing enough information on environmental sustainability to reflecting upon this while discussing it with the researcher, Ann ended up sharing the blame with her organisation. Dick (2002) emphasises that we all have a mental construct instilled in us that provide us with the beliefs on how organisations for example should be structured and how managers should behave. Ultimately, Ann felt that it was her organisation that must have formally provided some information.

Taking responsibility for knowledge acquisition instead of blaming someone else for not sourcing and supplying specific information on energy efficiency, for example, enables nurses to acquire knowledge about environmental sustainability within nursing practice. So who is responsible for understanding what a climate-friendly hospital is all about?

Young (2016) points out that knowledge acquisition is increasingly becoming the responsibility of the student (the person who needs the knowledge). Instead of laying blame on those who supposedly have the knowledge, understanding what a climate-friendly hospital and the role of the environmental steward is should be a shared responsibility between the nurses and the organisation.

Justification of lack of commitment by the participant

During the scoping component to identify climate-friendly hospitals for this study a particular hospital manager informed me that they provided information to their nursing staff about matters pertaining to environmental sustainability. Helen worked at that particular organisation and felt that climate-friendly hospitals were a good thing. The storytelling of her experiences, though, revealed that she did not seem to be committed to her organisation from an environmental stewardship perspective. Helen's focus was on her identity assimilated in the ways of a traditional hospital, that is, one that is not environmentally friendly. The need to make changes to accommodate (identity accommodation) what the hospital was currently implementing and intended to implement in the future was not something she took much notice of. Helen had not availed herself of any information:

That's what I mean, that's what I'm saying, I'm not sure, I don't know what they do about that (water conservation)...I'm not aware of what's going on because that doesn't really affect me, if you know what I mean...I haven't heard anything, I'm not really sure what's going on... (Helen).

Al-Hussami (2009) conducted a study on nurses' commitment to their healthcare organisations. Four residential care facilities located in the Miami-Dade County, Jordan were randomly chosen for the study. The study considered four variables; job satisfaction, perceived organisational support, transformational leadership behaviour and nurses' level of education. A multiple regression analysis showed that participants were committed to their organisations when job satisfaction was brought about through organisational support. Staff need to perceive that they were supported.

In terms of being an environmental steward, Helen perceived that there was very little support from her organisation on environmental sustainability. Thus her commitment to her organisation within this area was superficial.

Justification as a nurse first

As seen throughout this study participants maintained their self-consistency as a RN first and foremost. Even though Brenda unknowingly contributed to what could be identified as acts of environmental sustainability, (as did the rest of the participants), her nursing identity remained true to the embedded philosophy of a traditional hospital and the care of her patients.

We, we do have dimmer lights in the nursery; I didn't mention that, and so we, we you know do, like turn, nearly all turn all the lights down. But even around the, you know, the office area, and at night so, and down the corridors, the hallways all those lights get turned either off or down in the rooms. We have the ability to, to dim them and predominantly we do, do that. And that probably isn't so driven by climate-friendliness either,

that's actually about developmental care aspects for pre-termers and giving them your cyclic day night lighting, as opposed to being climate-friendly. I think more of our things are actually driven for the care we deliver as opposed to actually thinking about how it affects us climate wise (Brenda).

Irrespective of whether or not the best evidence-based information is provided to nurses there are some studies that suggest that some nurses will continue to practice within a traditional manner (doing things the 'old' way). Wallis (2012) wrote a commentary titled - 'Barriers to implementing evidence-based practice remain high for U.S. nurses: Getting past "We've always done it this way" is crucial.' In her article she commented on research undertaken by Melnyk, Fineout-Overholt, Gallagher-Ford, and Kaplan (2012) at Ohio State University (OSU), Columbus, who conducted a descriptive survey of a random sample of 1,015 members of the American Nurses Association. Results showed that only 34.5% of respondents (350) agreed or strongly agreed that their colleagues consistently used evidence-based practice (EBP) in treating patients. Although a majority (76.2%) felt it was important for them to have more education and skills in EBP, most found educational opportunities wanting as they did not access knowledgeable mentors, resources and tools needed to use EBP. The two most frequently cited barriers to EBP were a lack of time and an organisational culture that didn't support it. Melnyk et al. (2012) describes behaviour change as "tough" and one of the biggest barriers is getting past workplace resistance and the constraining power of the phrase, "that's the way we've always done it here."

As there was a lack of evidence within the area of environmental sustainability and its significance for best practice in nursing outcomes for the health of a person, Brenda continued to negate her organisation and practice in a

traditional way as mentioned above. Perhaps if Brenda had been 'given' enough information on environmental sustainability in nursing, then maybe her actions would not have been dichotomous between the care of her patients and that of being an environmental steward at work.

As alluded to previously, blaming behaviour still remains endemic in contemporary nursing culture (Snelling, 2015). Despite the reason that was assigned to blame the participants of this study maintained that their lack of knowledge and support in respect to environmentally sustainable implementations was due to lack of information provided by their organisation. Hence **The thirst for education** was verbalised on many occasions as being a key component for NOT understanding their being-in-the- world of a hospital whose organisational philosophy was one of climate-friendliness.

Sub-theme: **The thirst for education**

Nelson Mandela offered some truly inspirational words that as a student of hermeneutic phenomenology I have come to value, "*It always seems impossible until it is done*" and the other, "*Education is the most powerful weapon which you can use to change the world*" (Nsehe, 2013, p. 1).

Education is important in all facets of life. Article 26 of The Universal Declaration of Human Rights highlights that each individual has a right to an education (United Nations., n.d.). December 10, 1948 saw the adoption of The Universal Declaration by the General Assembly of the United Nations (Australian Human Rights Commission (AHRC), n.d.). The Declaration is a document emphasising that all humans are entitled to fundamental freedom and basic rights (AHRC, n.d.) such as education.

Education is known to be important and its links to development have been the subject of much research for many decades (Fägerlind & Saha, 1983).

Education (or lack thereof) was expressed by the participants of this study as being important to understanding their space and identity within the lifeworld of a climate-friendly hospital. As a result of the importance assigned by the participants on this, **The thirst for education** became a sub-theme of **Awareness of self within the social environment of a climate-friendly hospital**. Walker et al. (2012) elucidates that education is one of the many moderators that can affect coping skills with varying life demands.

The participants of this study learned to cope or adjust to the implementation of environmentally sustainable elements into their nursing practice. However, there were times when the identity of being a RN appeared to be an impediment to such practices and resistance to environmentally sustainable implementations occurred. This occurred mostly when participants were 'time poor.'

Breakwell (2010) would suggest such resistance as a type of coping mechanism. In other words, the participant's behaviour was such that resistance to execute an environmentally sustainable implementation meant that they maintained their identity as a RN by consciously rejecting the role of that of an environmental steward. Thus the coping strategy carried out by the participant reduced or helped them cope with the threat to their familiar identity.

Osbaldiston and Schott (2012) performed a meta-analysis on 87 published reports containing 253 experimental treatments on observed behavioural outcomes on the promotion of pro-environmental behaviour (PEB). The authors

found that the studies combined a myriad of treatments, interventions or manipulations that enabled PEB. Two approaches appeared to be the most effective to encourage pro-environmental behaviour with these being making it easy and prompts (Osbaldeston & Schott, 2012).

Examples of these experimental manipulations included putting recycling bins in individuals' office versus a central location, providing feedback regarding energy use in a household, offering incentives like free bus tickets to encourage the use of public transport and putting stickers on light switches to remind people to turn off lights when they left the room. Based on the data, Osbaldeston and Schott (2012) recommended to practitioners that designing programs to foster PEB needed to select the type of behaviour to target and then determine which interventions are likely to be particularly effective. This approach can also apply to mitigation strategies that healthcare organisations want their nursing staff to implement.

Participants of this study commented about the environmental sustainable implementations that they undertook with Sarah verbalising that recycling within her workplace was *"...easy enough to do..."*, whilst Stephanie spoke of her workplace as having someone would prompt them about correct recycling procedures by saying, *"...hey listen come on, we need to be a bit smart about this and there's a box there to put your bottle, drink bottles in."* Limitations found during Osbaldeston and Schott's (2012) meta-analysis suggests that for an individual to become engaged in a new behaviour (like implementing environmentally sustainable elements such as in this study) an individual is required to know the why (justification), how (instructions) and when (prompts).

Another significant component of nursing education is that of reflective praxis (Enuku & Evawoma-Enuku, 2015). The significance of reflective practice is defined as follows:

- a. It progresses nursing practice;
 - b. Purposefully reflective practice aids in-depth knowledge;
 - c. Aids in problem-solving;
 - d. Aids in critical thinking;
 - e. Helps to strengthen decision-making skills;
 - f. Improves organisational skills;
 - g. Can be used as a bench mark; and
 - h. Helps nurses to become more aware and confident in their approach to nursing care, which also increases the positive aspects of nursing.
- (Enuku & Evawoma-Enuku, 2015)

The ability to reflect on practice is another inherent part of the identity of being a RN and one that can also be transferred to environmentally sustainable practices. That said, the participants of this study whilst being confident within the role of a nurse (maintaining self consistency) within a traditional hospital were not confident in making changes in the self (identity accommodation) to become identified as an environmental steward within the space of a climate-friendly hospital. One reason for this, which has been identified previously, is that some of the participants did not have much knowledge regarding environmental sustainable implementations within an environmentally sustainable environment. When asked about future health care for patients within a climate-friendly hospital through her current experiences Jane envisaged that healthcare would need to:

...involve environmental care; it has to for our children and our future patients, clients, whatever. There has to be more education about it because I mean, I yeah, it has to be more education on it, but it is really,

it is very important. We'll have to get, we'll have to control it a lot more than what we have done in the past... (Jane).

All participants felt they lacked education about climate-friendly hospitals but they did not all agree on how they should be educated. Some participants stipulated that they needed more in-services (hospital delivered professional development sessions); others stated that informative posters throughout the hospital would be helpful. However, Helen felt that posters were not educational enough, *"we don't class by having a poster on, or a little sticker on a light switch as education... ."*

Although there has been a considerable lack of evidence-based information for nurses on environmental sustainability and how nurses can become environmental stewards this is now beginning to change. The American Association of Colleges of Nursing in 2011 made public a report titled, 'Toward an Environmentally Sustainable Academic Enterprise: An AACN Guide for Nursing Education' (Butterfield et al., 2014). The report revealed how U.S. colleges of nursing actioned the introduction of environmental sustainability into their organisations and curricula.

Through taking specific steps the colleges of nursing are not only becoming more environmentally sustainable themselves, but they also became conscious of the significance of educating nurses as *"future stewards in an environmentally sustainable health care system"* (Butterfield et al., 2014, p. 196). One poster that has been designed out of many to provide information to nurses about environmental sustainability is provided on the next page in Figure 26. Even though Helen felt that posters were not really a formal part of

education the AACN uses posters as a means by which nurses can be informed about decision-making regarding environmentally preferable purchasing.

ENVIRONMENTALLY PREFERABLE PURCHASING

BACKGROUND

All products that come into a practice setting undergo a process of decision making regarding which product, which vendor, at what price.


Environmentally Preferable Purchasing (EPP) is the act of purchasing products or services whose environmental impacts have been considered and found to be less damaging to the environment and human health when compared to competing products and services.¹

NURSES AND PURCHASING

A majority of products used in practice settings are used or touched by nurses.

Nurses are responsible for their professional practice, including the impacts of the products they use. Thus, if nurses are concerned about the health impacts of a product used in their practice, they need to speak up; their voice matters.

Nurses are involved in some purchasing decisions, on Shared Governance councils, or Value Analysis Teams, as examples.



WHAT NURSES CAN DO TO REDUCE IMPACTS OF PURCHASING DECISIONS

Serve on a team that evaluates products.

Consider these aspects of EPP:

- How much waste does the product create? Can a product with less waste be chosen?
- Is the packaging reusable (hard shell totes, e.g.) or recyclable? If not, is there an option that is?
- What is the chemical exposure related to the product? Are patients exposed? Nurses and clinical staff? Workers where product is created?
- What is the energy efficiency of the product? Is there an Energy Star rated option?
- Can recycled content options be used (e.g. for office supplies)?
- Can remanufactured options be used? Common opportunities include disposable blood pressure cuffs, sequential compression device sleeves, oximeter probes and a variety of OR supplies.
- Can efficiency of transportation and shipping be maximized? This saves energy, time and money.

If nurses do not have a role on purchasing committees, work to increase clinical presence in these decisions at your practice setting:

- Make case to leadership that nurses serve a valuable role on purchasing committees
- Make case to nursing, that delivery of environmentally safe care is a professional obligation
- Within nursing, create guidelines that assure safe delivery of care regarding toxic chemicals, responsible handling of waste, and responsible use of energy
- Address product selection in unit-based councils, and help create unit-based demonstration projects using products with fewer environmental impacts to create local (unit-based) demonstration projects of excellence that address these concerns
- Share results in newsletters, in community, and in interested journals

¹ <http://practicegreenhealth.org/topics/energy-water-climate>

Figure 26. Example poster placed in simulation laboratory (Butterfield et al., 2014, p. 200)

Australia is also increasing its proactivity in environmentally sustainable education and in March 2015 around 300 nurses and midwives attended the third Health and Sustainability Conference in Victoria (Australian Nursing & Midwifery Federation (ANMF) Victorian Branch, 2015). This conference discussed many strategies but a couple of years previously Preston (2012) contended that, within the Australian context, projects have been mostly centred on reduce, reuse and recycle, water and waste management with actions to reduce the carbon footprint being introduced only recently.

Education on nursing practice is generous (Kelly, Berragan, Husebø, & Orr, 2016; Saunders, 2016; Turenne, 2016), however, as illustrated by the storytelling of the participants in both this chapter and Chapter Four - Findings, education within the environmentally sustainable discourse is deficient. One aspect that participants felt increased their knowledge on environmental sustainability stemmed from what they discussed as practices being transferred from what was being implemented at home. **The Transfer of knowledge** was thus identified as a sub-theme to **Awareness of self within the social environment of a climate-friendly hospital**.

Sub-theme: **The transfer of knowledge**

This is the last sub-theme to be discussed in the theme **Awareness of self within the social environment of a climate-friendly hospital**. As previously mentioned by Preston (2012) most environmentally sustainable projects are thought to be conducted on waste management or recycling. It has also been identified and discussed several times in this chapter that of all of the seven key elements of a climate-friendly hospital the most spoken about and most

empowering aspect for the participants to display their knowledge was when they spoke of waste disposal or recycling. One notion of why the participants resonated with recycling is perhaps because they could easily reflect upon their practices from their home lifeworld and transfer them to their work lifeworld. This enabled participants to translate the practice of recycling from one lifeworld to another.

Naimark and Pearce (1985) contend that the transfer of knowledge to be a two-way process, from work-to-home, or home-to-work. As Helen engaged in recycling at home she was able to speak quite confidently about the recycling procedures at work even when they were experienced in a different manner, *"Well I recycle at home, we all have to...it's just something that we all do here (within her organisation), I suppose."* Sharing of knowledge was discussed earlier, whilst this sub-theme discusses the transferring of knowledge.

Paulin and Suneson (2012) contend that both the transfer and sharing of knowledge have been used synonymously on occasions and that both have content that can overlap. The authors stress that this 'blurriness' requires clarification (Paulin & Suneson, 2012). For the purposes of this research, sharing knowledge means the organisation sharing information (knowledge) about climate-friendly hospital practices; and the transfer of knowledge means the knowledge that participants bring to the workplace (transfer) from other situations such as home. In their home lifeworlds the process of recycling held a meaning and a value for the participants; however, this 'value' did not necessarily follow through into the workplace.

Lauby (2013) contends that just because an employee may have knowledge of a model, for example, in instructional design it does not mean that the individual knows how to be an instructional designer. In this instance, the participants of this study may possess some knowledge that has been transferred from their home lifeworld to their work lifeworld on recycling but that does not mean that they know this act of environmental sustainability to be connected to the role of an environmental steward.

Earlier in this chapter I discussed how one of the participants did not think that posters should be classed as a form of education. The American Association of Colleges of Nursing utilise posters as a form of education for students on environmentally preferable purchasing, this was shown in Figure 26 (Butterfield et al., 2014).

Posters have also been a topic of discourse in the transfer of knowledge by Ilic and Rowe (2013) who contend that posters alone should not be used in an attempt to achieve knowledge transfer. Instead, the authors suggest that an integrated approach together with supplementary material is necessary to change user knowledge, attitude and behaviour (Ilic & Rowe, 2013). Although the majority of participants spoke confidently with regard to their experiences of recycling from their home lifeworld to their work lifeworld, research illustrates that various mediums are necessary to enhance the transition from what is already known (prior knowledge), to what requires to be known for a process to be carried out correctly within a climate-friendly hospital.

The first theme **Awareness of self within the social environment of a climate-friendly hospital** has discussed through IPT how the sub-themes **The**

deficiency of knowledge in understanding the significance of a climate-friendly hospital, The thirst for education and The transfer of knowledge are closely linked to how awareness of an internal environment of a climate-friendly hospital is viewed and operated. The sub-elements also revealed that, due to issues within these sub-elements, participants tried to find a solution to their problems, therefore, **A culture of blame** arose out of justification for not understanding the significance and value of such an organisation. These characteristics also arise within the second theme: **Practice and the challenge of existence within two lifeworld qualities.**

Theme: Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward

"Interpretation must be guided by the idea of existence"
(Heidegger, 1962, p.350).

Figure 27 resonated with the researcher as it connects with Heidegger's meaning of bodily existence of being-in-the-world.



Figure 27. Existence (Dobbs, 2012)

Theme two provides an understanding of the ways of being-in-the-world of a climate-friendly hospital for ten RN participants. It described how the

participant's lived experiences of two lifeworld qualities, that of a nurse and that of an environmental steward, are challenged to become recognised as one embedded within registered nursing practice.

This challenge is despite the fact that the participants in this research have been combining the two qualities for some time as they have worked within the space of a climate-friendly hospital. The reflective praxis of the participants as alluded to on many occasions throughout the chapter is that there is a need to '*establish an identity*,' one that is beyond the familiar existence of 'just' a nurse.

This in itself is a challenge as Landauer and Rowlands (2001) postulate that to exist is to have an identity – most often there is a prominent single identity. For this study the very nature of existence for RNs in a climate-friendly hospital means having more than one identity at work. It is the combination of two separate characteristics (qualities) within the familiar environment of a traditional hospital that enable the participants to exist and '*establish an identity*' within a specific sense of place - that of a climate-friendly hospital, environmental steward, and also of a RN.

A sense of place can add a type of authenticity to an individual's identity. For example Lopez, Ramos, Nisenbaum, Thind, and Rodriguez (2015) propose that familiar multidimensional aspects provide security and trait authenticity. As the participants of this study are so familiar with the multidimensional aspects of a traditional hospital these specific environmental traits not only inform the participant's identity, they also add meaning to an individual's lifeworld experiences as they exist within a specific place (hospital/work).

Steger, Frazier, Oishi, and Kaler (2006) conducted research into the validity of the 'Meaning in Life Questionnaire' which is a 10-item measure of the presence of, and the search for, meaning in life, Appendix F. Through results of their research the authors were able to assign their own definition - *"...we defined meaning in life as the sense made of, and significance felt regarding, the nature of one's being and existence"* (Steger et al., 2006, p. 81). As the participants of this study are challenged to make sense of how environmental sustainability is significant to nursing practice, then the nature of identity and existence within the space of a climate-friendly hospital can be seen as holding very little meaning to their lifeworld as a nurse.

Participants maintained their identity as a RN (identity assimilation) through strong familiar characteristics that have been embedded into their personality through their education and the roles incorporated within their nursing practice and by their interpersonal and professional relationships.

Although some environmentally sustainable implementations had already been incorporated into nursing practice as per the experiences of the participants, they still grappled to identify the value of the roles and characteristics of an environmental steward. The lack of being able to combine the two identities of nurse and environmental steward is an ongoing issue that may well see the weaker identity of the two - environmental steward- continue to struggle for existence in the future within nursing.

The identities of a contemporary nurse continue to evolve as many varied roles become embedded in nursing practice. Smolowitz et al. (2015) describe how RNs assess, plan and evaluate the care of a patient with these nursing

competencies being deeply ingrained. The authors also contend that these attributes are also inherent in leadership and supervisory roles (Smolowitz et al., 2015). These deeply embedded nursing traits have helped the participants to cultivate, maintain, and in fact, strengthen their identity assimilation as a nurse.

The identity of a nurse remains strong and in order to highlight the identity as an environmental steward the issues related to this phenomenon, such as nurses who hold positions related to environmental stewardship, need to be raised. Sattler (2011, p. 60) conducted an interview with a RN about the position she occupied at the 'University of Maryland Medical Center' (UMMC) as a sustainability manager and how a nurse came to be chosen for that role. The nurse replied that the UMMC felt that the position would be ideal for a nurse as they could *"bridge the divide between clinical and facilities operation."* This current research found that some of the participants were not aware of what was happening in their facility and a role such as that described above may be of benefit.

Opportunities for participants to enact practices that incorporated environmentally sustainable implementations did not seem to materialise very readily. Despite the complexity of trying to *'establish an identity'* that would incorporate the two qualities of a nurse and also that of an environmental steward some hospitals, such as those identified in this research, are attempting to implement climate-friendly initiatives. This could mean that as more nurses become interested in environmental sustainability the transition to

identify not only as a nurse within a climate-friendly hospital but also as an environmental steward may be less challenging.

Sub-theme: **The motivation for practice within a climate-friendly hospital**

Identity process theory has been described by Breakwell (2010) as being both an extremely complex and comprehensive model right from its inception. The complexity is thought to be due to the many levels of analytical processes.

Some of the analytical processes that Breakwell (2010, p. 21) identifies include, *"... (the intrapsychic, interpersonal and intergroup), the processes whereby identity changes."*

Initially, the integrative framework of IPT was introduced to develop a clearer understanding of how individuals coped with the threat to their identities when confronted with different experiences. As such, IPT set out to examine the dynamic between individual identity, relationship with others and social structure (Breakwell, 2010). The individual identities as revealed in this study showed that within the social construct of a climate-friendly hospital, participants felt confronted with this difference and so remained true to the interpersonal relationships with others that provided them with the social identity that labelled them a nurse.

Throughout this chapter and Chapter Four the sense of belonging with being a RN had significant meaning for the participants. It enabled them to identify with other nursing colleagues such as clinical nurse leaders (Bender, Williams, Su, & Hites, 2016), other RNs (Johnson, Butler, Harootunian, Wilson, & Linan, 2016) and also with midwives (Flynn, 2013). Being identified as a RN enabled the participants to allocate a particular and 'comfortable' type of value to their work.

The same identity was not the same even when the nurse was also an environmental steward.

Even when carrying out environmentally sustainable implementations within the social constructs of a climate-friendly hospital, the majority of participants could only identify with this role when they discussed the implementations as being synonymous with that of the direct care of a patient. Therefore, for some participants, the inability to associate with two different identities - albeit within the one hospital - meant they viewed their organisations as still being traditional and did not see their facility as a climate-friendly hospital.

Stephanie elucidated that *"...If you went into our hospital a new staff member would not realise that there's anything different about our hospital to any other hospital, because I guess changes have been quite subtle."* The identity of being a nurse was so embedded within their psyché that it prevented them from seeing themselves as an environmental steward within a climate-friendly hospital. The main motivation for undertaking any activity within a climate-friendly hospital was driven by the perceived direct needs of the patient.

Nurse patient relationships are considered to be an extremely significant factor for occupational satisfaction for nurses (Gomes & Proença, 2015). The nurse patient relationship was also found to be of significance for the participants of this research who work in a climate-friendly hospital. Gomes and Proença (2015) speak of several theories to possibly explain this. Of particular interest is the content and process theory.

Content theory *"Identify human needs and explain motivational factors, identifying behaviors which satisfy the needs"* and process theory is linked to

cognitive processes of conscious mechanisms of decision-making (Gomes & Proença, 2015, p. 4). The needs (content) of the participants of this study were fulfilled even when they were undertaking tasks that saw them implementing environmentally sustainable elements (recycling for example). This was because their identity of being a nurse satisfied their needs.

The lack of proactive leadership as previously discussed, in the innovative implementations of any of the key elements of a climate-friendly hospital which are: energy efficiency, green building design, alternative energy generation, transportation, food, waste and water, meant that the motivation for nursing practice lay with the needs of the patient and nurses will maintain their identity assimilation (maintain their self-consistency) in order to place the needs of their patient before every other priority. Linda sums up her motivation for working in a climate-friendly hospital as:

And I think in summer our hospital's having good design so it means that patients have good light in their rooms that I think will make a big difference... Then for us, I think then of course it impacts on nurses because we are people too. And working...in those environments where it's, where it's a comfortable temperature, you can see out, umm, you can see your patients and what you need to do for them easily because the natural light is there. I think those will make an impact or continue to make a positive impact for us. I think small initiatives that don't make too much of an influence on us...sorry doesn't make too much of an impact on the amount of work we have to do. I think all of that will really be a positive too for us, and then we can feel proud (Linda).

The participants in this study attempted to maintain a sense of self but behaviour altered when necessary (identity balance) to accommodate the changes in their organisations. They did this by making the effort to make changes in their self (identity accommodation) without receiving the necessary knowledge and education. However, as their identity as a nurse remained ever

strong, their 'duty' (nurses are dutiful – Rassin, 2008) to the organisation ensured that new practices related to environmental sustainability were carried out. One such example of integrating the characteristics of a nurse and of an environmental steward is revealed as some participants discuss their experiences of working with computers.

Sub-theme: **Coping with computers**

The WHO and HCWH (2009) suggest that there are environmental, social and economic benefits to organisations when purchasing computers that are classed as energy efficient. Organisations, according to Volti (2014), are a major part of an individual's life as they are born, educated and work in such institutions. The author contends that technological advances such as the use of computers have become part of the structure of organisations today and that they can be both empowering and meaningful to the user or can have the reverse effect (Volti, 2014). **Coping with computers** is not only a sub-theme to **Awareness of self within the social environment of a climate-friendly hospital**, it is an experience that all ten participants identified as an integral part of contemporary nursing practice.

Historically the use of computers in nursing practice was not as prolific as what it is today as they were mostly a necessity for ward clerks for administration purposes (Smith, Smith, Krugman, & Oman, 2005). This research revealed that all of the participants had to access computers during their shift for one reason or another. Participants described the use of computers positively and negatively.

Whilst computers had been recognised by the WHO and HCWH (2009) as being environmentally sustainable from an energy efficient point of view, for example, this type of reasoning was of no consequence to Laura who felt that computers were *"brought in as a, a technological based type of advancement...But as far as climate-friendly..."* Laura didn't think so. Instead Laura thought that computers were *..."just fortunately one of the bi-products..."* that impacted on her nursing practice.

Hannah liked the fact that computers provided her with the opportunity to retrieve all her patient's pathology results and other information such as chest x-ray results, as well as having her *"...patient's medications on there."* These positive aspects of technology were seen as positive. Computer usage for some participants however was not viewed so positively and as Volti (2014) pointed out earlier there were times when computers were considered an impediment.

Jane felt that having to use computers to enter data during the interviewing of her clients impeded the therapeutic relationship. She described computers as depersonalising *"...because you are actually facing away from them (clients)."* Jane feared that her clients would feel that computers were valued more than them. Despite feeling this way, Jane never-the-less made changes in herself (identity accommodation) to comply with what her organisation had implemented (identity balance) (Sneed & Whitbourne, 2003).

Learning how to navigate new computer software was a challenge for Linda especially when she was time poor for what she considered more important nursing duties. Linda found that she had to be *"...pretty committed to finding*

things..." especially when *"...trying to deal with you know 500 pieces of information."* The introduction of new computer software can thus be a challenge for some.

Increases in the use of Hospital Information System (HIS) saw Chow, Chin, Lee, Leung, and Tan (2012) conduct a cross-sectional survey on the perceptions, level of satisfaction and attitudes toward the use of HIS. A stratified, random sampling of three hundred and forty-two nurses using HIS were recruited from a private Hong Kong hospital. The results provided a guide for nurse managers in how to develop an information system that was based on the needs of nurses. Craswell in her Grounded Theory PhD study on what influences midwives to use computers, discovered that midwives become more engaged and therefore satisfied when the systems devised was deemed to be user-friendly. Craswell (2014) titled her substantive theory the Theory of Beneficial Engagement.

Health Information Systems are now considered a precondition for improving the quality of patient care (Lin, Hsu, & Yang, 2014). In fact, HIS are considered a means for efficient communication, information sharing and cooperation with professional healthcare colleagues. Health information system use is rapidly expanding and in Taiwan, for example, almost 95 percent of hospitals have adopted information technologies to support nursing care in their clinical and administrative processes (Lin et al., 2014).

Hendrich, Chow, Skierczynski, and Lu (2008) collected baseline data in 36 hospital medical-surgical units within 17 health systems across 15 states in the United States of America, about how nurses spent their time before a HIS

known as Electronic Medical Records was implemented. The time and motion study noted that 35 percent of nurses' time was spent on documentation, 20.6 percent was spent on care coordination and 17.2 percent was spent on medication administration. A second time and motion study by Banner and Olney (2009) examined nursing behaviour at baseline and one year following Electronic Health Record (EHR) implementation in a cardiac inpatient unit.

Although nurses increased time with documentation from 23 percent to 35 percent after EHR implementation, they were able to spend 6 percent more time in direct patient care activities and 3 percent less time in indirect patient care activities. In addition, nurses spent 12 percent less time in administrative tasks. Participants in this study, however, felt that using computers actually took more time and perceived that they had less time to devote to direct patient care.

In addition to computer based information retrieval and documentation, the majority of participants in this study still wrote supplementary notes about their patients on scraps/pieces of paper (identity assimilation). Traditionally, these pieces of paper were disposed of in an ordinary bin. However, as hospitals introduced the segregation of various materials into different receptacles for disposal, that is, when recycling was introduced, participants had to change their practice to accommodate the new implementations.

Although recycling was important to the participants, as previously discussed, not all participants felt they could trust the new approach when it came to the disposal of potential and actual, identifiable patient information. Participants felt that their identity, as it related to protecting their patient's sensitive information,

was under threat and the new process was often considered a potential breach to confidentiality.

Sub-theme: **The ethics of maintaining patient confidentiality**

Confidentiality is described as the *"ethical obligation to keep someone's personal and private information secret or private"* (Fry & Johnstone, 2008, p. 206). Information that is exchanged in a confidential manner between a patient and their health care provider is, according to Wong, Lavoie, Browne, MacLeod, and Chongo (2013), central to a relationship that is therapeutic. This ethical obligation is a characteristic that Brenda describes as being *"...inbred to most nurses..."* and is an extremely powerful component of nursing practice.

Most participants could relate to the consequences should a patient's confidentiality be breached in any manner or form. Jane was very aware of the significance of keeping a patient's information safe as she stated that *"...we have the power with the control of the information...so we have to be beyond reproach."*

During the process of the handover of patient information from one nurse to another, or through the course of a nursing shift, some participants wrote on 'scraps of paper.' These scraps have been acknowledged by Hardey, Payne, and Coleman (2000, p. 208) as *"the personalized recordings of information that is routinely made on any available piece of paper (hence scraps) or in small notebooks."*

Paper documentation allows nurses to immediately record, retrieve and share relevant patient information at the point of care in a way that is not immediately available through electronic systems. As such, say Ivesen, Landmark, and

Tjora (2015), continue to serve purposes beyond and outside what is currently supported by current electronic information systems.

These pieces of paper have 'nursing value' as they represent interrelated relationships between a number of aspects and tasks related to the delivery of nursing care. They are often commended at handover when nurses pass on information from one shift to another about details relating to patient care.

Hardey et al. (2000), through their ethnographic study on 34 RN participants examining handovers, informal interactions between nurses and interviewing, constructed a model illustrating these relationships. This can be viewed in Figure 28.

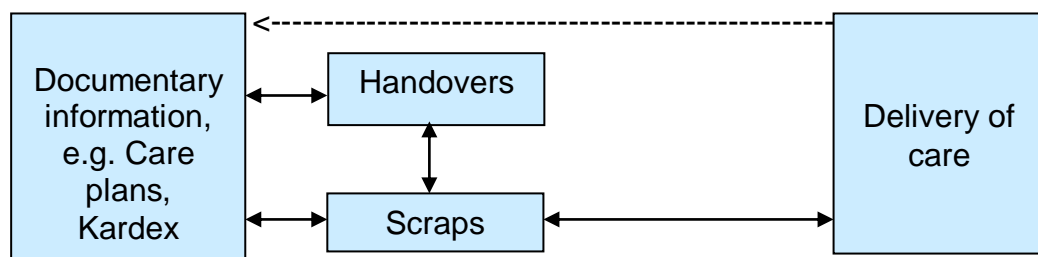


Figure 28. A model of the role of scraps (Hardey et al., 2000, p. 213)

These 'scraps' of paper have a lot of value in the eyes of nurses. As Hannah pointed out, for her *"...that piece of paper is so valuable: it's got patient's identity in there, all of their details on there. You know, if anybody had got their hands on that...it could be very awful outside of the hospital...you're not upholding your own...competencies by doing that (disposing of confidential paperwork), definitely not."*

In addition to acknowledging the importance of documenting notes on scraps of paper, Hardey et al. (2000) produced three main themes from their study, 1) the construction and content of scraps, 2) the role and use of scraps and 3)

confidentiality and disposal. It is this last theme that Hannah pointed out as having a huge potential for breach in patient confidentiality.

At the end of a busy shift she noticed that some of her nursing colleagues were either taking their pieces of scrap paper home or they were "*...leaving them on the counter,*" whereby anybody could gain access to some of a patient's information. As Hannah elucidated her colleagues understood the significance of confidentiality, however, she acknowledged that it all came down to time to dispose of the scraps appropriately in the recycling bin. "*You know they're just so busy throughout the day, they might not even have lunch breaks, they've got something that's more pressing even, and you know, that's the last thing they've got to do before they go home.*" These types of actions are a potential for concern in nursing as shown above within the breach of confidentiality.

Majority of participants in this study preferred to keep their identity entrenched in their traditional role as a nurse. However, by maintaining this identity the participants found it challenging to '*establish an identity*' that would help them gain a collective ownership of their climate-friendly hospital, one that they would value and trust as a traditional hospital.

Theme: The need to belong-encompassing a collective ownership of a climate-friendly hospital

"Encouragement helps people change their story"
(McKinney, n.d.).

The experiences divulged thus far of the participants work lifeworld within the space of a climate-friendly hospital has seen the participants not really *establishing an identity* that enables them to recognise themselves or be

recognised by others as environmental stewards. Maybe if they perceived that they had received greater encouragement or support from their organisations on the significance of climate-friendly initiatives then possibly as McKinney (n.d.) stated above, their stories about their experiences would have been different. The researcher depicts the aspect of bonding through the image of mother and child as seen in Fig. 29. As participants lacked the support and encouragement from their organisations, then the bonding between participants and their climate-friendly organisation did not occur.

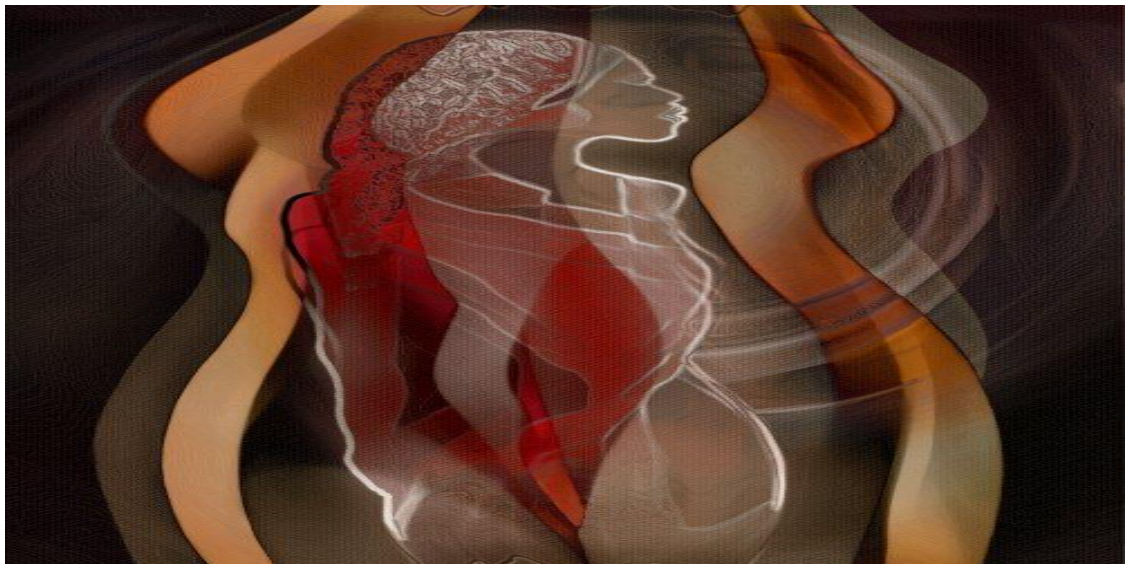


Figure 29. A sense of belonging (Grodecki, n.d.)

Given that participants described what they perceived to be a lack of encouragement, they struggled with their need to belong to their organisation. Not in the sense of being a nurse within the social space of a traditional hospital, but as being an environmental steward within a climate-friendly hospital. Climate-friendly hospitals are innovative in practice as they work toward mitigating their carbon footprints. Acknowledged by the WHO and HCWH (2009) health care professionals (such as the participants in this study)

have been recognised as personnel who can aid health organisations around the world to tackle global warming and hence climate change.

It has been established in this study that some hospitals within Australia are initiating actions in order to take up this challenge through implementing one or more of the seven key elements. However, people will not engage in change unless they feel some ownership or a sense of value to the change process or practice (Gärtner, 2013). A theme that arose in this study is one that has to do with the participant's sense of belonging. In particular, it was participant's collective ownership of a climate-friendly hospital. **The need to belong-encompassing a collective ownership of a climate-friendly hospital** is the last of the three Themes to be discussed. The theme is informed by two sub-themes: a) **The language used to portray the need to belong** and b) **The challenges of people and place**.

Over the past decade healthcare organisations have progressively implemented environmentally sustainable practices so as to meet the criteria to identify them as a climate-friendly hospital. However, the title 'Climate-Friendly Hospital' has meant that for some participants there have been some challenging times. To engage in the processes of such an organisation there needs to be a sense of belonging.

The need to belong, according to Mohamed, Newton, and McKenna (2014), is the most basic need for an individual's psychological well-being. In 2011 the authors conducted a questionnaire survey of 437 RNs from two Malaysian hospitals. An exploration of factors that contributed to the nurses' sense of belonging to their place of work was carried out. Results of the survey

suggested that a sense of belonging for Malaysian nurses was contextually influenced by culture, teamwork and stereotypical values pertaining to the nursing profession (Mohamed et al., 2014). The sense of belonging to a climate-friendly hospital for the participants of this study was not influenced by the work culture, teamwork and stereotypical values that pertain to such an organisation. This is because climate-friendly hospitals are still evolving and there still remains an ambiguity surrounding the whole concept of what these hospitals are all about from a nursing perspective.

From a work culture point of view participants spoke of environmentally sustainable practices from a traditional perspective. Switching off lights for example meant nothing else other than the association with *"patient comfort,"* it was not described as being relational to that of environmental stewardship, a role in which a person would also view the practice as a way of saving energy.

Very little was spoken about in terms of the connection of teamwork to environmentally sustainable implementations. Some participants even felt they were *"alone"* in trying to implement such practices. In fact, when Laura tried to promote recycling within her unit she stated that she felt as if she was *"hitting her head against a brick wall."*

Throughout this study participants related the sense of belongingness to their hospital through stereotypical traditional values that are embedded into a traditional nursing practice. Stereotypical values provide RNs with a culture in which they can identify themselves with, and a sense of belonging to a team. Because climate-friendly hospitals are though, relatively young, they lack the rooted stereotypical values that are often embedded into a nursing culture,

leaving the possibility of a combined identity of a RN and environmental steward strained.

Reflecting on what Mohamed et al. (2014) described earlier regarding the psychological well-being and sense of belongingness for nurses, the participants of this study attribute their psychological well-being and sense of belonging to their climate-friendly hospital through relationships that pertain to traditional values (identity assimilation). One particular way in which nurses may feel a sense of belonging to their climate-friendly hospital is to take ownership for their own environmentally sustainable practices.

‘Ownership’ of environmentally sustainable practices may, however, be extremely challenging for nurses who do not understand the underlying reasons of an organisation's desire to initiate climate-friendly actions. Reavy and Tavernier (2008) contend that one way in which nurses can recognise ‘ownership’ of their practice and roles that they undertake is through evidence-based practice (EBP). From education to management to direct patient care should be, according to Reavy and Tavernier (2008), based on the best evidence possible at the time. Using EBP can provide nurses with the knowledge and skills required to become involved in changes and regain ownership of their practice. The authors also mention that there are barriers to using (EBP) (Reavy & Tavernier, 2008).

Through listening to stories told by the participants, key barriers that can be considered as a challenge to the ownership of environmental practices include; lack of information on EBPs regarding the inclusion of environmental sustainability into nursing practice and lack of understanding what a climate-

friendly hospital stands for. Due to the lack of knowledge sharing and the value placed upon a climate-friendly hospital as a place of environmental practice and one which contributed to fiscal savings, achieving a collective ownership within such an organisation was a challenge.

Despite participants indicating they did not feel a sense of belonging with regard to the climate-friendly aspects of their work - one aspect that united all participants was their support for climate-friendly organisations. Ann viewed climate-friendly hospitals as being *"...a great idea and it's a great concept."* Jane, Brenda and Hannah also contended that they were *"...a good idea."* Laura went a step further to state that climate-friendliness was *"...a really important aspect of the function of any hospital,"* whilst Christine elaborated that she thought climate-friendly hospitals were *"...a very good initiative to have started because hospitals are one of the biggest users of resources... ."* Linda believed that they had been *"...a long time coming,"* while Helen stated how important it was to her that *"...climate control and things like that..."* were being *...looked after."* As the participants were unable to gain a sense of belonging to their hospital and collective ownership through environmental sustainable practices, they had a tendency to use a type of language that would portray a sense of belonging to the hospital in which they worked - one of climate-friendliness.

Sub-theme: **The language used to portray the need to belong**

In the words of van Manen (1990, p. 38) the *"... lived experience is soaked through with language."* The way in which language was used in this study was important as it gave participants a voice in which to express their individual

experiences. It also provided them with the ability to communicate how significant relationships are with others. A number of papers have been written in respect to nurses and their need for belongingness (King, 2017; Borrott, 2016; Vinales, 2015; Levett-Jones & Lathlean, 2009; Levett-Jones, 2007), this desire was no different to the participants of this research. Due to the lack of knowledge of the 'climate-friendly' aspect of the very facilities in which they worked, participants found 'other' ways to connect themselves to their organisation. Participants used language which portrayed a sense of internal social connection. Therefore language such as 'we' was used to present there was a relationship with others.

Helen used the word 'we' as she was describing examples of recycling, "*...we've got access to more rubbish bins and things like that...but it's just something that we all do here.*" Christine described the reuse of tools within the emergency department in which she worked "*...on a day to day basis, we have lots of reusable tools so lots of our instruments in emergency for say intubating a patient, are cleaned and reused so that we are not wasting... .*"

It was noticeable that during the interviews that participants spoke with more confidence when the pronoun 'we' was used. The use of pronouns such as 'we' according to Burkus (2015) aids in the ability of a speaker to focus on others rather than on a person's self. The use of 'we' has also been suggested in high-status individuals as they are more collectively oriented (Kacewicz, Pennebaker, Davies, Jeon, & Graesser, 2014). The authors explored five studies with respect to the position a person holds and their use of pronouns (Kacewicz et al., 2014). Results of these studies revealed that the higher the

rank the fewer first-person singular pronouns are likely to be used. This is because higher ranks are linked to other-focus whilst lower ranks are consistent with self-focus (Kacewicz et al., 2014).

Through the use of collective language within this study, participants revealed their belongingness to an identity steeped in tradition (identity assimilation), however, they made changes to the way in which some of their nursing practices were carried out (identity accommodation); social cohesion could be identified by an identity balance whereby the participants maintained their sense of self (nurses) but changed when necessary through conducting environmental implementations (waste procedures).

Even when the processes of identity theory could be detected to reveal various identity practices, challenges of recognising themselves as an environmental steward within the space of a climate-friendly hospital still occurred.

Participants revealed through their story-telling that the climate-friendly hospitals in which they worked were either *"not all that climate-friendly,"* or that there was *"very little information provided"* with regard to environmental sustainability. As such these descriptions by participants have brought this study to reveal the last sub-theme, **The challenges of people and place.**

Sub-theme: **The challenges of people and place**

In this last sub-theme participants are symbolic of people or personnel and place is a symbol of the social environment of a climate-friendly hospital. The sub-theme discusses some challenges encountered by the participants in their search to *'establish an identity'* within an environment that is changing and one in which they have scant knowledge. For example, the title of a 'climate-friendly

hospital' is somewhat alien to the participants, this in itself brings a challenge in the ability to value such an organisation in the way that they value the title of a hospital.

Participants spoke about not being aware that their organisation was being identified as a *"climate-friendly hospital."* The RN participants stated that they *"could not remember seeing anything displayed"* that would inform them that their hospital was categorised as such. This isolation from the knowledge of what the participant's organisation was implementing left some RNs feeling alienated from their climate-friendly hospital and as such left the participants searching for the need to *"establish an identity"* as a practitioner within such an organisation. Brooks (2013) reported five reasons as to why some organisations alienate their employees, Figure 30.



Figure 30. 5 ways to alienate employees. Adapted from Brooks (2013)

Brooks, 2013 goes on to canvass five options to resolve such issues thereby helping employees to feel connected to their organisation. These include:

1. Information sharing- providing updates;
2. Maintaining an open-door policy for employees to voice their ideas;
3. Encouraging employees to take on new responsibilities and projects to instil confidence and learn new skills;
4. Working towards goals that will be supported by their organisations, although goal setting according to the author is applied to careers, the same objectives can be applied to RNs wishing to achieve goal setting in environmental sustainability; and
5. The need to take a break to recharge. (Brooks, 2013)

Although Brooks (2013) identified ways in which employees could feel a connection with their organisations, participants of this study were unable to feel connected to their climate-friendly hospital verbalising that: 1) there was a *"lack of information"* to share, 2) they felt challenged when trying to *"make suggestions"* to enhance practices, 3) new skills were learnt but this *"did not instil confidence"* in certain practices, 4) their organisation was *"not really supportive"* of implementing any additional environmentally sustainable goals even when they tried to suggest various practices and 5) on many an occasion they were extremely *"time poor."*

As noted above Brooks (2013) provided five ways employer/employee alienation could be resolved. However, when reflecting on the experiences that participants have portrayed what it is actually like to work in a climate-friendly hospital, the road to resolving such issues could be challenging. Even when innovative practices have been implemented into such organisations and

employer/employee alienation seem to have been resolved, innovative practices can never-the-less fail after a period of time.

Longenecker and Longenecker (2014) used focus groups to collect data from 167 frontline leaders from four community hospitals to explore why hospital change efforts fail. Participants representing 11 different functional areas, including all facets of hospital operations, were asked to identify the primary causes of failure of a recent change initiative at their hospital. A content analysis of the focus group data identified 10 primary barriers to successful hospital change. These results are outlined in Table 38. Although this current study differs somewhat to that of Longenecker and Longenecker's (2014), much of what the participants have experienced can be seen within the following list.

Table 27
Top 10 barriers to successful hospital change as identified by frontline hospital leaders

Top 10 barriers to hospital change
1. Poor implementation planning and overly aggressive timelines – 73%
2. Failing to create buy-in/ownership of the initiative – 67%
3. Ineffective leadership and lack of trust in upper management – 62%
4. Failing to create a realistic plan or improvement process – 55%
5. Ineffective and top-down communications – 52%
6. A weak case for change, unclear focus, and unclear desired outcomes. – 50%
7. Little or no teamwork or cooperation 43%
8. Failing to provide ongoing measurements, feedback and accountability - 38%.
9. Unclear roles, goals, and performance expectations - 36%
10. Lack of time, resources, and upper - management support – 33%

(Longenecker & Longenecker, 2014, p. 150)

Not only does Table 39 identify barriers to organisational change it also has relational aspects to that of Brooks' (2013) employer/employee alienation, as well as relational aspects to what the participants of this study experienced. With such barriers identified for both people and place it is imperative that a strong relationship exist between organisations and its employees. This is so that implementations can be given a chance to exist and its employees a chance to identify themselves within the space of a climate-friendly hospital.

The need to belong-encompassing a collective ownership of a climate-friendly hospital has been demonstrated by the experiences of the participants to be paramount to the capacity to '*establish an identity*' for self within the social environment of a climate-friendly hospital. The identity of participants as nurses has been challenged by the incorporation of an unfamiliar identity of an environmental steward. Despite this, they have largely (not always) complied with what their organisations have instigated and tried to balance the latter by carrying out environmentally sustainable implementations in their nursing practice where possible.

Conclusion

This chapter revealed how significant one's identity is, both at an individual level but also as part of a collective. The chapter made an original contribution to knowledge as it elucidated the meaning of an individual within a social construct and examined how other individuals identify with who we are when being-in-the-world. As individuals, we all possess a kind of knowing about ourselves. As the quote from Heidegger, which was presented at the commencement of this chapter, says, we first need to identify with ourselves. When qualities threaten

our identity we look for strategies to help us cope with the situation and with the change. Some participants in this research coped by resisting on occasions to the environmentally sustainable activities that their organisation was implementing. This was observed when the participants were time poor or when the environmentally sustainable task interfered with their nursing duties.

Nurses are used to performing various tasks during their work lifeworld. These tasks, though, are normally identifiable to nurses as they remain within what could be called traditional nursing practice. What this study has identified is that participants have struggled to “*establish an identity*” of an environmental steward whose qualities are unfamiliar to them. A perceived lack of knowledge has resulted in participants not being able to identify themselves as an environmental steward.

As a result of a lack of knowledge the participants were unable to assign an intrinsic value to environmentally sustainable implementations and its relationship to nursing practice. Rather than embracing the role that could have become meaningful to them in the way that other nursing roles are, the participants, on certain occasions, have made the conscious decision when they have felt that their role of a nurse has been threatened not to execute the environmentally sustainable implementations that have been set in place by their organisations. This has meant that the participants have maintained identity assimilation as a nurse but could not identify as an environmental steward therefore could not also integrate this as an identity.

Chapter Six is the concluding chapter of this thesis. Presented within this chapter will be discussions related to the essence of meaning, the identity

process theory, issues arising from the study and recommendations. Also discussed are considerations for policies and policy makers including policies on infrastructure. Contributions to knowledge, limitations of the study and further research precede the final summary.

CHAPTER SIX

CONCLUDING SUMMARY

Contributions to knowledge, limitations and recommendations

Introduction

The aim of this two phased hermeneutic phenomenological study was to understand the experiences of RNs working in a climate-friendly hospital. Although van Manen (1990) elucidates that there is no one set method in phenomenology, this study never-the-less used the author's recommended set of six procedural steps to guide an exploration into the work lifeworld of RN participants. Two research questions underpinned the study: 1) *"To what extent have hospitals become climate-friendly within Australia?"* and 2) *"What does it mean for a RN to work in a climate-friendly hospital?"*

To fulfil the aim of question one a comprehensive audit was carried out on Australian hospitals in order to identify with those that were implementing mitigation strategies. This audit revealed of the many hospitals in Australia, very few are actually initiating many of the climate friendly strategies. The aim of question two was fulfilled by conducting in-depth semi-structured interviews of RNs using a phenomenological approach.

Five chapters preceded this last chapter: Chapter One discussed an overview of the research. The background to this study was explicated through exploration of existing literature related to the topic and was presented in two sections: 1) a historical account of the establishment of Australian hospitals, 2) the development of nursing as a profession. Chapter Two was also presented in two sections: 1) a historical account of the establishment of Australian

hospitals, 2) a brief history of nursing. The role of the researcher and the researcher's axiological position was discussed in Chapter Three along with the method used to guide the analytical process. Three themes that were embedded in stories told by the participants were revealed in Chapter Four. The core essence of meaning that finally emerged was discussed in Chapter Five along with supporting literature.

The completed study revealed that the role of being a nurse was of value and significance to the participants. The challenge was identifying self within the social construct of a climate-friendly hospital, and the combining of two separate lifeworld qualities into nursing practice.

Contributions to knowledge

It has been revealed that contemporary literature has commenced bringing to the forefront environmentally sustainable implementations within healthcare organisations (Dhillon & Kaur, 2015). Literature is also addressing how nurses perceive climate and environmental issues within their place of work (Anåker, Nilsson, Holmner, & Elf, 2015). However no research could be found that has contributed to the phenomenon of interest like this study. In particular this study has:-

- Conducted an in-depth study of experiences encountered by RNs as they work within climate-friendly hospitals that have adopted mitigation strategies into their daily operations. This has produced an understanding of what RNs perceive with regard to the notion of a climate friendly hospital;

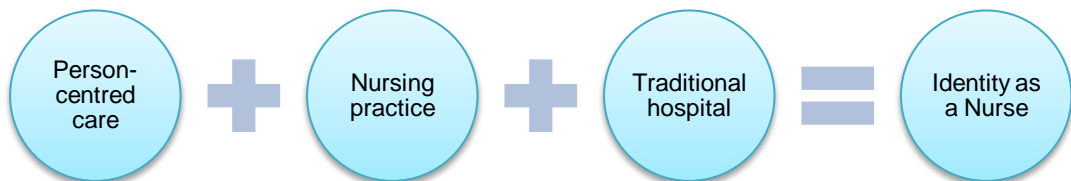
- Provided an insight into issues that have arisen pertaining to RNs identifying themselves within the social environment of a climate-friendly hospital;
- Offered a rationale as to why RNs have not been able to recognise their climate-friendly organisation as being labelled as such; and
- Addressed the complexity of combining two lifeworld qualities within the role of nursing practice-that of a nurse and that of environmental steward.

In order to understand the complex ability of combining two lifeworld qualities an Identity Process Theory (IPT) was used to illustrate that other lifeworld qualities can be integrated within other qualities, such as those of a nurse and environmental steward. By utilising IPT to examine and describe the three main themes, the explication of the essence of meaning which is to '*establish an identity*,' was enabled.

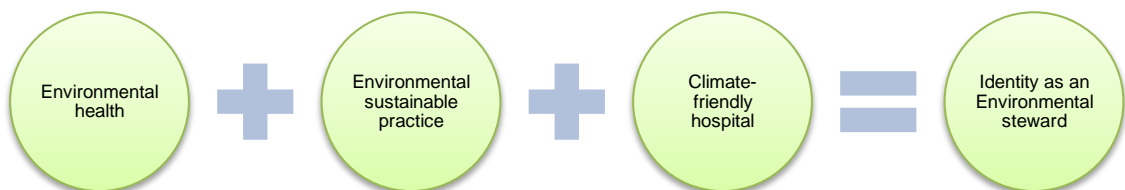
Although the role of an environmental steward was integrated into the nursing practices of the participants the RNs maintained a strong connection to their traditional nursing role. This demonstrated the occurrence of identity assimilation (maintaining self consistency). Although unfamiliar role inclusions such as energy efficiency and water conservation, for example, were carried out by the participants, they were unaware that these practices were changing the role of their nurse status to incorporate one of an environmental steward - identity accommodation (making changes in the self). Last but not least the study revealed that by combining the two previous processes the participants

were able to maintain an identity balance (maintaining a sense of self, but changing when necessary). These processes are presented in Figure 31:

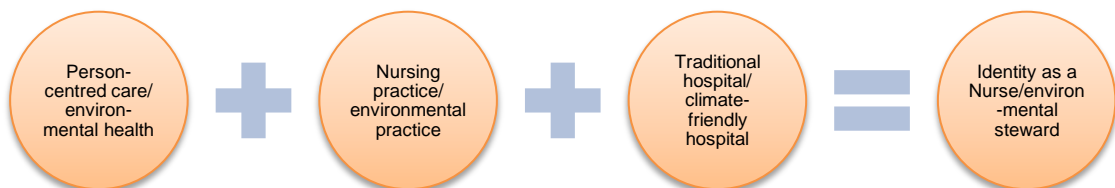
Identity assimilation (Maintaining self consistency)



Identity Accommodation (making changes in the self)



Identity balance (maintaining a sense of self, but changing when necessary)



Identity = value + significance

Figure 31. Identity equals value and significance

Identity equals value and significance

Identity formation has to do with the complex manner in which human beings establish a unique view of themselves and is characterised by continuity and inner unity. As noted above when an identity is formed it provides the person with the basis to give a value and significance to an entity or a phenomenon. In case of this research identity relates to being a nurse and being an environmental steward or both, particularly if the RN is working in a climate-friendly hospital as was the case of the participants in this study. The goal then of personal identity formation is to establish a coherent view of self through the process of perceiving value and significance in what one does. Nurses working in a climate-friendly hospital need to be able to understand qualities or roles that contribute to their identity as an environmental steward so that they can assign a significance and value to their work within the area of climate-friendliness.

Environmentally sustainable implementations were conducted but were classed as extensions to patient care, and were very often not implemented correctly due to time constraints and other pressing nursing duties. This meant that conducting environmentally sustainable implementations were not valued or thought of as being all that significant in comparison to nursing practice.

Limitations

After a national audit a purposive sample of climate friendly hospitals saw RNs working within these hospitals invited to participate in this study. Purposive sampling, according to Creswell (2003) can bring limitations to a qualitative research in the way that it decreases the ability to generalise the findings. The participants in this study were purposively selected from hospitals that were

implementing mitigation strategies to reduce their carbon footprint. As these hospital practices are relatively embryonic in comparison to a traditional hospital, sample size was small and results cannot be generalised. That said, it was never the intent they would be. The contribution from participants was though intensive, and as such the phenomenon in question was able to be addressed.

An additional limitation to this study is that the quality of research is heavily dependent on the skills of the researcher (Anderson, 2010). To compensate for the researcher's novice skills within hermeneutic phenomenology I remained aware of biases and idiosyncrasies that could possibly occur during collection and analysing data. As I was aware of such limitation I endeavoured to maintain a close relationship with my supervisors to delimit any such issues. This was done by having regular meetings with supervisors and by maintaining a diary of my possible biases.

Another limitation of the study and one that is significant is the very embryonic nature of climate friendly hospitals in Australia. Only 27 could be identified and, of these, none were implementing all seven mitigating elements. This meant that the hospitals that were included and from which participants could be potentially sourced were limited in their climate mitigating actions. The degree to which they can then be truly classed as “climate friendly” was variable. This caused somewhat of a dilemma and was not a factor that could be overcome. Perhaps in a few years’ time, more hospitals will be lamenting more of the seven key elements. Despite the newness of this concept in Australia, it remains an important area of study. What this does mean is that

recommendations are driven toward ensuring that when hospitals do start to become climate friendly they involve their nursing staff from the 'get go' in the development and implementation of mitigating strategies.

Another limitation is that from the seven participating hospitals two were from Victoria, one from New South Wales and seven from Queensland which was the dominant state.

Findings and associated recommendations

The following section outlines recommendations. These are discussed in relation to the themes that emerged as part of the findings.

Theme: Awareness of self within the social environment of a climate-friendly hospital

Issue

This study identified that there was a lack of education surrounding the agenda of a climate-friendly hospital. As such no participants were aware of procedural framework(s) at their hospital in respect to environmentally sustainable implementations.

Recommendations

1. In order for participants to identify with being-in- the-world as an environmental steward as well as that of a nurse regular in-service education or professional development on what the hospital is proposing as a climate-friendly organisation should be conducted;
2. Within hospitals each section/unit has its own agenda on how their department should be run. For example, an intensive care unit would operate differently to that of a general ward, or maternity unit. Education on

how to incorporate one or more of the seven key elements should thus be tailored to suit each individual department, unit or ward;

3. The act of transferring knowledge through skills learned outside of the work lifeworld by nurses should be encouraged and embraced by the organisation. This practice will instil a sense of commitment to the hospital's agenda on climate-friendly initiatives and provide a sense of belonging for the nurses and therefore provide them with the necessary identity;
4. Nurses are accustomed to adhering to policies and procedures that are monitored by the organisation and external bodies such as accreditation committees. As hospitals are initiating environmentally sustainable elements into the daily workload of nurses, then clear and concise policies on environmental stewardship is advantageous to explicate awareness; and
5. As nurses have been identified as potential drivers of climate-friendly hospitals, then it is paramount that they are included in all facets of policymaking that pertain to environmental considerations as they relate to nursing practice.

Considerations: General policies for a climate-friendly hospital

When developing general policies for a climate-friendly hospital policy makers should consider implementing the six following concepts as guidelines, Figure 32:

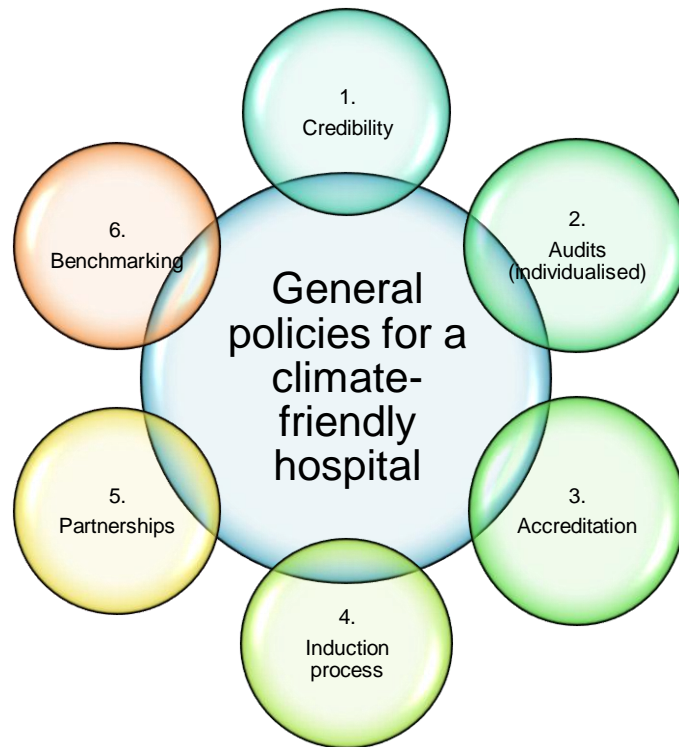


Figure 32. General policies for a climate-friendly hospital

1. The health organisation should be credible in respect to pragmatic processes so that there is complete understanding of the organisation's ethos;
2. Individualised departmental audits should be carried out so that goals can be measured and benchmarked against a baseline. This action will enable individualised departments, wards and the like to observe if environmental implementations are viable;
3. The organisation should set in place an annual accreditation conducted by an external source conversant with environmentally sustainable implementations to assess performance;
4. An induction into environmentally sustainable practices should be provided for all new employees to a climate-friendly hospital. In-service training will then continue to provide updates when necessary;

5. A policy on how to develop partnerships with other like-minded organisations should be encouraged. This is so nurses can share their experiences on environmental stewardship; and
6. A policy on benchmarking is important for progress and it is imperative that both positive and negative feedback is presented at meetings. This alerts both managers and nurses to address their weaker areas and enhance their stronger ones. This process also ensures that the hospital with its many parts is contributing as a whole to the main objective, which is 'no harm' to humans or the environment.

Whilst the above policy related recommendations have emerged as a result of the experiences of the participants in this research the following policy recommendations have emerged more broadly. For example, from what the World Health Organization (WHO) and Health Care Without Harm (HCWH) has classified as key elements that are significant to a climate-friendly hospital.

Considerations: General policies for internal/external infrastructures

Figure 33 takes into consideration the infrastructure of climate-friendly organisations. It discusses the considerations for individualised frameworks, internal and external environments and mentions the importance of the seven key elements.

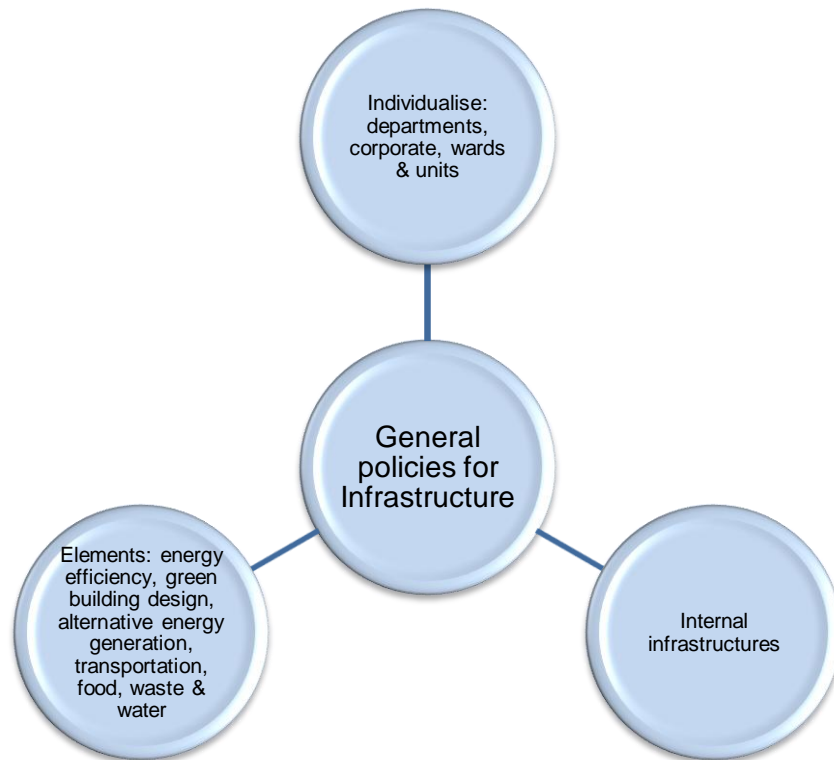


Figure 33. General policies for infrastructure

The framework for infrastructure considers three important areas:

1. Environmental coordinators should be knowledgeable of both the specific work area and environmental sustainability. This would enhance the correct environmental policies to be tailored to suit the nursing practice and operation of each department, ward, or unit;
2. Buildings - Policies should be written so that all nursing and non-nursing employee contributions are considered when alterations to departments are being planned. Designs of individualised departments and the like are so important to employees especially when environmentally sustainable initiatives are going to be implemented; and

3. Organisations should include all seven key elements into their policies as part of their internal/external structuring, as it is these key elements that have been recognised as the foundational framework of a climate-friendly hospital.

Theme: Practice and the challenge of existence within two lifeworld qualities: Nurse/environmental steward

Issue

Due to lack of knowledge this study identified that participants were challenged to assimilate a value and significance regarding the role of an environmental steward. By the participants remaining stalwart within their familiar identity of a RN any environmental initiatives were seen as being implemented for the care of the person. Thus the care of the environment was not really thought of as being significant.

Recommendations

1. So that a value and significance can be placed on the role of an environmental steward, just as a value and significance is placed on the role of a nurse, it is recommended that education on environmental sustainability be incorporated into undergraduate nursing education. Knowledge can then be put into practice within climate-friendly hospitals. Education can then become a continuum through healthcare organisations offering in-service training (professional development) with regular updates and support from nurse leaders that are knowledgeable in environmental sustainability; and

2. Innovative ideas from any members of the health profession on environmental sustainability should be encouraged by organisations and presented to executive management for consideration.

Theme: The need to belong-encompassing a collective ownership of a climate-friendly hospital

Issue

The participants of this study did not feel a sense of belonging to their climate-friendly hospital. Therefore the participants lacked the ability to identify themselves as being-in-the-world of a climate-friendly hospital in the way they could identify themselves as being-in-the-world of a traditional hospital.

Recommendation

To decrease the lack of belonging perceived by participants in regard to environmental sustainability organisational cohesiveness should be encouraged.

Implications for future research

As climate friendly hospitals become more visible on the Australian healthcare landscape it will become increasingly important to conduct more research in this area. Approaches that are qualitative, quantitative as well as those that incorporate mixed methods and also those that evaluate and analyse environmental policies within hospitals, implementation processes, patient care etc. will increase the body of knowledge which at present can best be described as scant in Australia.

Final reflection

As I reflect over the past few years and my experience of conducting this research I have come to understand many things like assigning value to oneself as a researcher, the value of the participants and the importance of identity. I learnt that reflecting on past experiences is often an intense and highly personal process and yet is very fulfilling. It really does enhance growth. Reflection can bring to the present an understanding to be shared for the future. In this final reflection of a journey back in time I have come to realise that hidden messages can be brought to light through stories told.

a) I have learned so much through this research journey and realised that all of us really do hold preconceptions through our own lifeworld experiences. I learnt to acknowledge these and bring them to the fore so that I was not blind to the point of prejudice or bias. This was a constant process that I needed to constantly remain aware of, as it was only the true experiences of the participants being within-the-world of a climate-friendly hospital that could provide me with the answer to the phenomenon in question. Smith et al. (2013) state that even though preconceptions can be acknowledged, it is the engaging process between researcher and participant that is most crucial as engagement inevitably facilitates the awareness of preconception.

b) With respect to valuing the participants I came to fully appreciate their centrality to the process. I learned to listen and interview from a research perspective – something very different to the way I would conduct these things as a nurse. I reflected upon the positive and negative aspects of their stories as they tried to make sense of their being in a climate-friendly hospital. Even

though the participants implemented environmentally sustainable activities into their daily nursing practice with such limited knowledge, I admired their tenacity to bring to fruition their understanding of their experiences of working within such an organisation.

c) Reflecting upon the essence of meaning, the need to “*establish an identity*” led me to think about a childhood game I used to play in order to occupy myself - it was called joining the dots. Being immersed in a world where I had to make sense of objects, landscapes, animals and other entities, these dots were scattered unrecognisably over a page, and were assigned numbers. When joined in numerical order - a picture emerged that provided an entity, one that could be identified, described and interpreted so that it had some semblance of value and meaning.

A PhD has a LOT of dots! But through analysing stories told by the participants, each dot has been slowly and carefully joined in a methodical way to give meaning to the question of “what is it like for a RN to work in a climate-friendly hospital?”

For me as researcher the completed picture revealed the need to “*establish an identity.*” For the participants, however, the dots remain partially joined. The picture remains blurred and the whole concept of what a climate-friendly hospital is about and the implementations of environmental sustainability not fully appreciated. Their identity as an environmental steward therefore remains a challenge, as is the significance and value of working in such an organisation.

This PhD journey has been challenging, complex, difficult, time-consuming, and frustrating. It has also been amazing and one where I have learned so much about research. “Completion” of this PhD is actually the beginning.

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APPENDIX A

National Pollution Inventory

National Pollutant Inventory List of Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 Table 1 - Numerical index of ANZSIC codes

M) Professional, Scientific and Technical Services

69 Professional, Scientific and Technical Services (Except Computer System Design and Related Services)

691 Scientific Research Services

6910 - Scientific Research Services

N) Administrative and Support Services

72 Administrative Services

729 Other Administrative Services

7292 - Document Preparation Services

73 Building Cleaning, Pest Control and Other Support Services

731 Building Cleaning, Pest Control and Gardening Services

7311 - Building and Other Industrial Cleaning Services

7312 - Building Pest Control Services

O) Public Administration and Safety

76 Defence

760 Defence

7600 - Defence

77 Public Order, Safety and Regulatory Services

771 Public Order and Safety Services

7713 - Fire Protection and Other Emergency Services

P) Education and Training

81 Tertiary Education

810 Tertiary Education

8101 - Technical and Vocational Education and Training

8102 - Higher Education

Q) Health Care and Social Assistance

84 Hospitals

840 Hospitals

8401 - Hospitals (Except Psychiatric Hospitals)

8402 - Psychiatric Hospitals

85 Medical and Other Health Care Services

853 Allied Health Services

8531 - Dental Services

APPENDIX B

KooWeeRup Climate Challenge

KooWee Climate Challenge

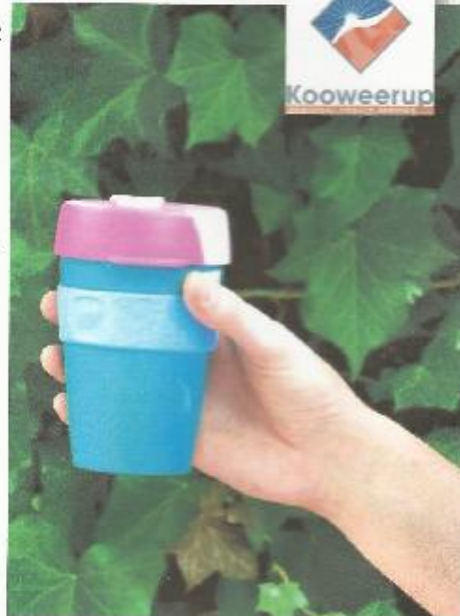
Environmental Sustainability Pledge

Climate change has been said to be "the biggest public health threat of the 21st Century"
(The Lancet Commission, 2009).

Infectious diseases like malaria and dengue are spreading to new locations, heat waves are more frequent, impacting on conditions such as asthma, heart disease and heat stroke. Increasingly severe storms, droughts and floods, harm human health and stretch services. It's all too easy to feel the issue is too great that you can't make a difference, however, if we do nothing it will affect our future and that of our children and grandchildren.

As health care providers we can work together on this important challenge - to live sustainably.

We need our staff to learn together, act together by taking the pledge and help us to be the change.



Reducing our Climate Footprint

If you choose to participate, please complete the pledge on the back of this sheet, sign below, then pick up a free 'Keep Cup' from reception.



Bring your Keep Cup to **Charlie's Coffee Cart**
at the flagpole for **Fair Trade Coffee**.

Weekdays 10.30 - 11am and 2.30 - 3.00pm

Coffee with Keep Cup \$3.80 without \$4.00

Congratulations! Thanks for taking the time to make a pledge.

Name: _____

Contact Details: _____

Department: _____

Privacy Statement

Your personal information will be handled in accordance with KRHS Information Privacy Policy. The pledge responses will be collated and displayed on the environment section of Intranet to promote and grow the uptake of staff engagement.

0001 Climate Change/Environment/Commitment/Pledge46 - 16/12/2023/14/01/15

APPENDIX B (continued)

I pledge to do my part to meet the challenge posed by climate change by taking the following steps:

1. To demonstrate my commitment to sustainability at KRHS, I pledge to:

Behaviour	YES	N/A
Energy		
Turn off my computer when I leave work at the end of the day		
Turn off my monitor when I leave work at the end of the day		
Switch off lights when not required (including over bed and night lights)		
Turn off air-conditioning (if applicable) overhead fans and portable heaters		
Turn off printers when I leave work at the end of the day		
Turn dishwashers off when dishes are not being processed		
Use blinds to help regulate the temperature		
Water		
Use a refillable water bottle instead of purchasing bottles of water		
Only use the dishwasher when it is fully loaded		
Turn off taps while soaping up hands where sensor activation is available		
Use harvested water for watering the garden where available		
Turn off or report dripping taps		
Transport		
Reduce the number of car trips by using public transport, walking, car-pooling, and/or riding a bike (bike rack in A/H carpark)		
Use teleconferencing to reduce work-related car where possible		
Waste		
Reduce paper consumption by printing on both sides		
Reduce printing by only printing when necessary for example circulate one report rather than multiple copies		
Recycle used paper for notes		
Use electronic media wherever possible		
Bring my "Sustainable Keep Cup" for my drinks		
Segregate general waste from clinical waste		
Segregate recycling waste from general waste		

2. Are there any behaviours that you would like to pledge to? Suggestions can be: Purchasing fresh vegetables from local growers such as community garden or the South East Food Hub. Participation in the community garden - by picking out a few weeds or purchasing vegies helps keep it sustainable.
My suggestion:

.....

3. I am interested in becoming a sustainability supporter at KRHS? This would entail you being a team leader for sustainability in your department/area. Training to support you in this role will be available and you will receive sustainability information for you to share within your department/area on a regular basis. **Yes** **No**

APPENDIX C

Initial Application Approval – Transfer



INITIAL APPLICATION APPROVAL -Transfer

In reply please quote: HE12/167

Further Enquiries Phone: 4221 3386

28 May 2012

Mrs Teresa Lewis
PO Box 1323
Noosaville BC
NOOSAVILLE QLD 4566

Dear Mrs Lewis,

I am pleased to advise that the application below has been approved.

Ethics Number: HE12/167
Project Title: Becoming a Climate -Friendly Hospital: Implications For Nursing Practice Within the Australian Healthcare Context
Researchers: Mrs Teresa Lewis, Professor Lorna Moxham, Mr Marc Broadbent, Professor Richard Fleming
Approval Date: 3 May 2012
Expiry Date: 2 May 2013

The University of Wollongong/SLHD Health and Medical HREC has noted the previous Central Queensland University Human Research Ethics Committee approval (Project H11/10-155) and the transfer of the research to University of Wollongong.

The University of Wollongong/SLHD Health and Medical HREC is constituted and functions in accordance with the NHMRC *National Statement on Ethical Conduct in Human Research*. The HREC has reviewed the research proposal for compliance with the *National Statement* and approval of this project is conditional upon your continuing compliance with this document.

A condition of approval by the HREC is the submission of a progress report annually and a final report on completion of your project. The progress report template is available at <http://www.uow.edu.au/research/rso/ethics/UOW009385.html>. This report must be completed, signed by the appropriate Head of School and returned to the Research Services Office prior to the expiry date.

As evidence of continuing compliance, the Human Research Ethics Committee also requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforeseen events that might affect continued ethical acceptability of the project.

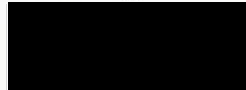
Please note that approvals are granted for a twelve month period. Further extension will be considered on receipt of a progress report prior to expiry date.

Research Services Office University of Wollongong NSW 2522 Australia
Telephone: +61 2 4221 3386 Facsimile: +61 2 4221 4338
research-services@uow.edu.au www.uow.edu.au/research

APPENDIX C (continued)

If you have any queries regarding the HREC review process, please contact the Ethics Unit on phone 4221 3386 or email rso-ethics@uow.edu.au.

Yours sincerely,



**Associate Professor Sarah Ferber
Chair, UOW & ISLHD Health and Medical
Human Research Ethics Committee**

cc: Professor Lorna Moxham
School of Nursing, Midwifery and Indigenous Health

APPENDIX D

Information for Participants



Information for Participants

Principal Researcher: Teresa Lewis
Address: The School of Nursing, Midwifery and Indigenous Health
University of Wollongong
Wollongong
NSW 2500
Email: tml274@uowmail.edu.au

What is the Research Project About?

In 2009 The World Health Organisation and Healthcare without Harm put out a draft paper called Healthy Hospitals, Healthy Planet, Healthy People. The paper discussed seven key elements that would contribute towards hospitals becoming climate-friendly.

Why is your input so important?

The research requires registered nurses of any designation (e.g. registered nurse/midwife) that have worked within a climate-friendly hospital for more than 9 months. As registered nurses make up the largest percentage of the nursing workforce in hospitals, it is important to understand if any change to nursing practice has occurred due to implementation of climate-friendly initiatives (such as recycling).

What is involved?

The involvement includes:

- A voluntary one-on-one audio recorded interview with myself with the opportunity to withdraw from the research at any time, however data withdrawal is possible only prior to deidentification after transcription.
- Interviews will last for approximately one hour at a venue convenient to yourself.
- Any information you provide will not be able to be identified and all comments made will remain anonymous. No personal information is required.
- All recorded information will be kept on a CD and locked in a cabinet or on a password protected computer at a secure site to ensure confidentiality.
- No judgement will be made about your individual responses.

What is my goal?

My goal is to capture an individual registered nurses experience of working within a climate-friendly hospital. The results obtained from this research will be disseminated through publications in journal articles, at conference proceedings and shall be written up in my PhD thesis.

APPENDIX D (continued)



How to participate

To become involved in this research, please complete the attached consent form and return it within the prepaid envelope at your earliest convenience.

How are you protected as a participant?

As already stated you are asked to participate as a voluntary registered nurse with the opportunity to withdraw from the research at any time. Withdrawal of data however will only be possible prior to deidentification after transcription.

The study has been reviewed by the University of Wollongong Human Research Ethics Committee. You may contact the Research Services Office during business hours Monday to Friday on:

Ph: (02) 4221 3386 or

Email: rso-ethics@uow.edu.au if you have any concerns regarding the research process.

Findings of the research will be made available to you in a summarised form at the completion of the study. If you require a summary please inform the principal researcher (contact details above).

Once again thank you for donating your valuable time to read this Participant Information Sheet. If you have any questions prior to the signing of the consent form, please email me at the following email address tml274@uowmail.edu.au, or research supervisor Professor Lorna Moxham lmoxham@uow.edu.au, or co-supervisor Dr Marc Broadbent m.broadbent@cqu.edu.au

Kind regards

Teresa Lewis Registered Nurse/Midwife

APPENDIX E

Informed Consent Form



Principal Researcher: Teresa Lewis Address:
The School of Nursing, Midwifery and Indigenous Health
University of Wollongong
Wollongong, NSW. 2500
Email: tml274@uowmail.edu.au

Informed Consent Form

‘Becoming a climate-friendly hospital: the implications for nursing practice within the Australian healthcare context’

Thank you for volunteering to participate in this study. The interview in which you will be participating does not have any immediate direct benefit to participants. However, the results will help to identify any future implications for registered nurses and their nursing practice due to hospitals becoming more climate-friendly.

Your participation will consist of one audio taped interview of approximately one hour’s duration in order to accurately capture your own experiences as a registered nurse whilst working within a climate-friendly hospital. There may an instance whereby contact by email (or by your preferred choice of contact) may be necessary in order to clarify a statement.

You have the right to terminate the interview at any time. However, withdrawal of data is possible only prior to de-identification after transcription. Confidentiality will be adhered to at all times and as the interviews are one-on-one with myself there will be no avenue left open for your identification to be revealed to any outside party.

Questions you may have in regards to the research may be addressed by contacting either the Research Services Office at the University of Wollongong on (02) 4221 3386 or me at the above email address. A summary of the findings will be made available to you upon request.

By signing the consent below you are accepting to volunteer to participate in this study and that you have read and understood all the necessary information.

☐ Please tick the box should you require a summary of the findings.

Signature of Participant _____ **Date** _____

Researcher:

APPENDIX F

The Meaning in Life Questionnaire

The Meaning in Life Questionnaire

MLQ Please take a moment to think about what makes your life feel important to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:

1. Absolutely Untrue, 2. Mostly Untrue, 3. Somewhat Untrue, 4. Can't Say True or False, 5. Somewhat True, 6. Mostly True, 7. Absolutely True

1. I understand my life's meaning.
2. I am looking for something that makes my life feel meaningful.
3. I am always looking to find my life's purpose.
4. My life has a clear sense of purpose.
5. I have a good sense of what makes my life meaningful.
6. I have discovered a satisfying life purpose.
7. I am always searching for something that makes my life feel significant.
8. I am seeking a purpose or mission for my life.
9. My life has no clear purpose.
10. I am searching for meaning in my life.

MLQ syntax to create Presence and Search subscales:

Presence = 1, 4, 5, 6, & 9-reverse-coded

Search = 2, 3, 7, 8, & 10